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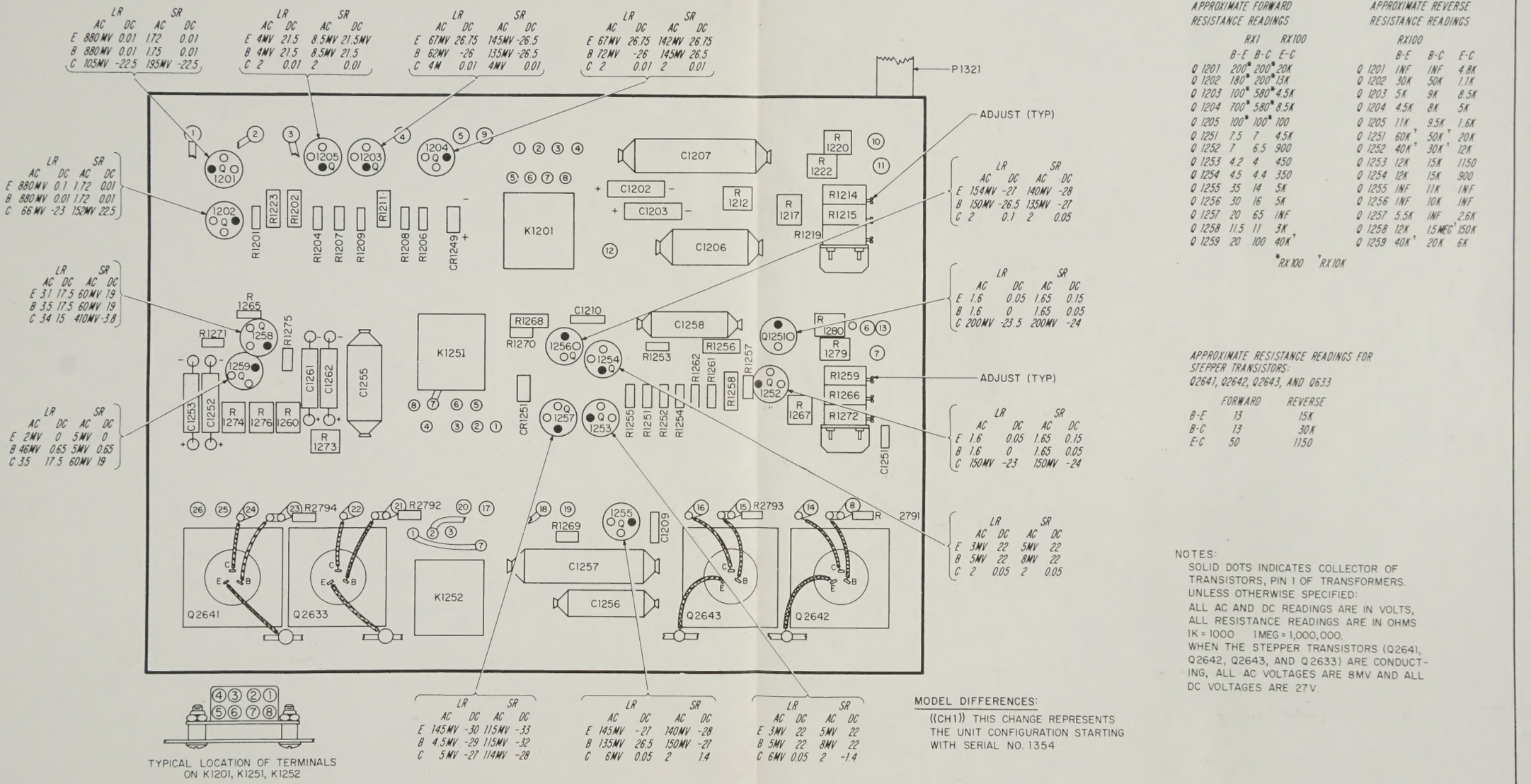

APPROXIMATE FORWARD RESISTANCE READINGS

	RX1 B-E	RX100 B-C	RX100 E-C
Q 1201	200*	200*	20K
Q 1202	180*	200*	13K
Q 1203	100*	580*	4.5K
Q 1204	700*	580*	8.5K
Q 1205	100*	100*	100
Q 1251	7.5	7	4.5K
Q 1252	7	6.5	900
Q 1253	4.2	4	450
Q 1254	4.5	4.4	350
Q 1255	35	14	5K
Q 1256	30	16	5K
Q 1257	20	65	INF
Q 1258	11.5	11	3K
Q 1259	20	100	40K†

*RX100 †RX10K

APPROXIMATE REVERSE RESISTANCE READINGS

	RX100 B-E	RX100 B-C	RX100 E-C
Q 1201	INF	INF	4.8K
Q 1202	30K	50K	1.1K
Q 1203	5K	9K	8.5K
Q 1204	4.5K	8K	5K
Q 1205	11K	9.5K	1.6K
Q 1251	60K†	50K†	20K
Q 1252	40K†	30K†	12K
Q 1253	12K	15K	1150
Q 1254	12K	15K	900
Q 1255	INF	11K	INF
Q 1256	INF	10K	INF
Q 1257	5.5K	INF	2.6K
Q 1258	12K	1.5MEG†	150K
Q 1259	40K†	20K	6K

APPROXIMATE RESISTANCE READINGS FOR STEPPER TRANSISTORS: Q2641, Q2642, Q2643, AND Q633

	FORWARD	REVERSE
B-E	13	15K
B-C	13	30K
E-C	50	1150

MODEL DIFFERENCES:

((CH1)) THIS CHANGE REPRESENTS THE UNIT CONFIGURATION STARTING WITH SERIAL NO. 1354

NOTES:

SOLID DOTS INDICATES COLLECTOR OF TRANSISTORS, PIN 1 OF TRANSFORMERS.
UNLESS OTHERWISE SPECIFIED:
ALL AC AND DC READINGS ARE IN VOLTS,
ALL RESISTANCE READINGS ARE IN OHMS
1K = 1000 1MEG = 1,000,000.
WHEN THE STEPPER TRANSISTORS (Q2641, Q2642, Q2643, AND Q2633) ARE CONDUCTING, ALL AC VOLTAGES ARE 8MV AND ALL DC VOLTAGES ARE 27V.

Figure 12-18A. Card Subassembly 2113-1 Location/Wiring/ Troubleshooting Diagram

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Table 1-1. Glossary of Terms and Abbreviations (cont.)

LON	Destination Longitude Minus Present Position Longitude
Long	Longitude
LSD	Least Significant Digit
L-C	Latitude Cosine Digit (Brush or Output)
LR	Long Range
L-S	Latitude Sine Digit (Brush or Output)
Δ lat	Change in Latitude
Δ long	Change in Longitude
+Δ LAT	Latitude Step North
+Δ LONG.	Longitude Step East
−Δ LONG.	Longitude Step West
M	
MAG	Magnitude of pulse trains
Mod	Modification
MOD	Module
MSD	Most Significant Digit
N	
NEG	Negative
Norm	Normal
O	
"OR"	Circuit in digital card subassemblies
P	
P	Pitch Angle
PAVM	Phase Angle Voltmeter
PC	Pitch Converter output
PD	Pitch Decoder output
PG	Polarity Gate
POL	Polarity indication (+ = + 22 vdc; − = + 34 vdc)
POL	Complementing indication (+ = + 34 vdc; − = + 22 vdc)
POL GATE	Polarity Gate
POL P	Polarity Pitch
POL R	Polarity Roll
PP	Present Position
PPC	Present Position Computer
PPS	Pulses Per Second
pres	Present Position
PSVM	Phase Sensitive Voltmeter
PT	Calibration Gate from Calibration Relay Assembly
PTF	Pulse Train Follower
pwr	Power
P4	P4, for example; 4th binary digit output from pitch converter. (P1 or .5 decimal equivalent, not used in pitch converter).
Q	
Quad	Quadrant
R	
R	Roll Angle
R4	R4, for example; 4th binary digit output from roll converter (R1 or .5 decimal equivalent, not used in roll converter).
S	
S	South
Sec	Secant-Secondary-Second
SEC LAT	Secant Latitude
SEC LAT 8	Pulse train to Final Countdown circuits, calibrated for longitude angles
SET + LAT	Pulse Controlling Slow Slew of Latitude North
SET − LAT	Pulse Controlling Slow Slew of Latitude South
SIG	Signal
SIL	Silent
SIN	Sine
SIN Cos	Sine Cosine
SLEW	Manually change coordinates
SR	Short Range
SYNC	Synchronizer
S7	7th digit of binary number representing sine of an angle
T	
T	Time or Timing

Table 1-1. Glossary of Terms and Abbreviations (cont.)

Ta, Tb, Tc Td	Low-Frequency timing
Ta + c, Tb + d	Sum of low-frequency timing pulses
TACH	Tachometer
TACH EXC.	Tachometer Exciter
TAS	True Air Speed
TM	Trinary Multiplier Circuit
TRI	Time Rate Indicator
TX	Synchro transmitter
TYP	Typical
T1 through T6	High-frequency timing pulses

V

vac	Volts, alternating current
vdc	Volts, direct current
Ve	Velocity East
Vw	Velocity West
Vn	Velocity North
Vs	Velocity South
Vge	Wind Computed Velocity East
Vgw	Wind Computed Velocity West
Vgn	Wind Computed Velocity North
Vgs	Wind Computed Velocity South
Ve-w	Ground Speed East or West
+Ve-w, Vge	Pulse Contribution to Ve-w East Going
—Ve-w, Vgw	Pulse Contribution to Ve-w West Going
Ve-w analog hi	Ac analog equivalent of Ve-w (amplified)
Ve-w analog low	Ground Return for Ve-w
Ve-w analog	Ac equivalent of Ve-w
+Ve-w sec lat/8	Ground Speed East Times Secant Latitude divided by 8
—Ve-w sec lat/8	Ground Speed West Times Secant Latitude divided by 8
Vn-s	Ground Speed North or South
Vn-s (1)	Vn-s analog output of PPC when Vn-s positive
Vn-s (2)	Vn-s analog output of PPC when Vn-s negative
+Vn-s, Vgn	Pulse Contribution to Vn-s. North Going
—Vn-s, Vgs	Pulse Contribution to Vn-s, South Going
Vn-s analog hi	Ac analog equivalent of Vn-s (amplified)
Vn-s analog low	Ground Return for Vn-s analog hi
Vx	Along velocity pulse train relative to ground
Vn-s analog	Ac equivalent of Vn-s
—Vx	Pulse contributions subtracted from forward velocity
+Vx	Pulse contributions added to forward velocity
Vxa	Gates Vxa pulses
Vxa	Along Velocity Pulse Train relative to aircraft
Vxa P	Along Velocity Pulse Train x Pitch Angle
Vy	Horizontal Side Velocity relative to ground
+Vy	Pulse Contributions for drift to the right
—Vy	Negative Pulse Contributions for drift to the left
Vya	Across Velocity Pulse Train relative to aircraft
Vya R	Across Velocity Pulse Train x Roll Angle
Vz	Vertical Velocity relative to ground
+Vz	Pulse Contributions to velocity up
—Vz	Pulse Contribution to velocity down
Vza	Verticle Velocity Pulse Train relative to aircraft

W

W	Wind
We	Wind Velocity East
We-w	Wind Velocity East or West
Wn	Wind Velocity North
Wn-s	Wind Velocity North or South
Ws	Wind Velocity South
Ww	Wind Velocity West

SECTION II
TEST EQUIPMENT AND SPECIAL TOOLS

2-1. GENERAL.

2-2. SCOPE. This section contains the test equipment, and special tools used for testing, trouble analysis, and repair of the PPC unit and its subassemblies.

2-3. TEST EQUIPMENT. There are three test stations required for depot level testing and maintenance. They are defined as follows:

NAME	*TEST FUNCTION*
Test Equipment, Depot-Station 5 (Figure 2-1.)	Digital card subassemblies.
Test Equipment, Depot-Station 14 (Figure 2-3.)	Analog card subassemblies.
Test Equipment, Depot-Station 7 (Figure 2-5.)	PPC unit test

2-4. Throughout this handbook, these equipments are referred to by their common names, Test-Station 5, Test-Station 7, and Test-Station 14, respectively. Refer to Table 2-1 for the breakdown and function of these test stations and special tools.

2-5. SPECIAL TOOLS. (Figure 2-7.)

2-6. GENERAL. In addition to tools commonly used in maintenance of electronic equipment, the special tools listed in Table 2-2 are needed to make necessary repairs to the printed circuit assemblies used in the PPC unit and its subassemblies.

Table 2-1. Test Equipment

Figure and Index No.	Name	Mfr's Designation	Use	Qty
2-1	Test Equipment Depot-Station 5	LFE 40668-1	Performs test required to evaluate the digital card subassemblies in the PPC Unit.	1
2-1, 1	Panel, Power Distribution	LFE 34933-1	Power supply distribution.	1
2-1, 2	Switch	Heineman 0411TS	On-off power to test station.	1
2-1, 3	Power Supply	LFE 40556-6	Supplies minus 27 vdc.	1
2-1, 4	Power Supply	LFE 40556-8	Supplies plus 18 vdc.	1
2-1, 5	Power Supply	LFE 40556-7	Supplies plus 22 vdc.	1
2-1, 6	Power Supply	LFE 40556-10	Supplies plus 28 vdc.	1
2-1, 7	Power Supply	LFE 40556-4	Supplies plus 34 vdc.	1
2-1, 8	Power Supply	LFE 40556-2	Supplies plus 44 vdc.	1
2-1, 9 (Typ)	Switch, Rotary	LFE 40679-9	Controls high and low marginal voltage.	6
2-1, 10	Counter, Electrical (CTC)	LFE 50115-1	Electrical pulse counter.	1
2-1, 11	Panel, Indicator	LFE 34906-1	Binary display.	1
2-1, 12	Test Set-Programmer	LFE 34830-1	Provides mounting facilities for Programmer (Patchboard).	1
2-1, 13	Panel, Connector	LFE 41293-1	Provides connections for cables between test station and subassemblies under test.	1

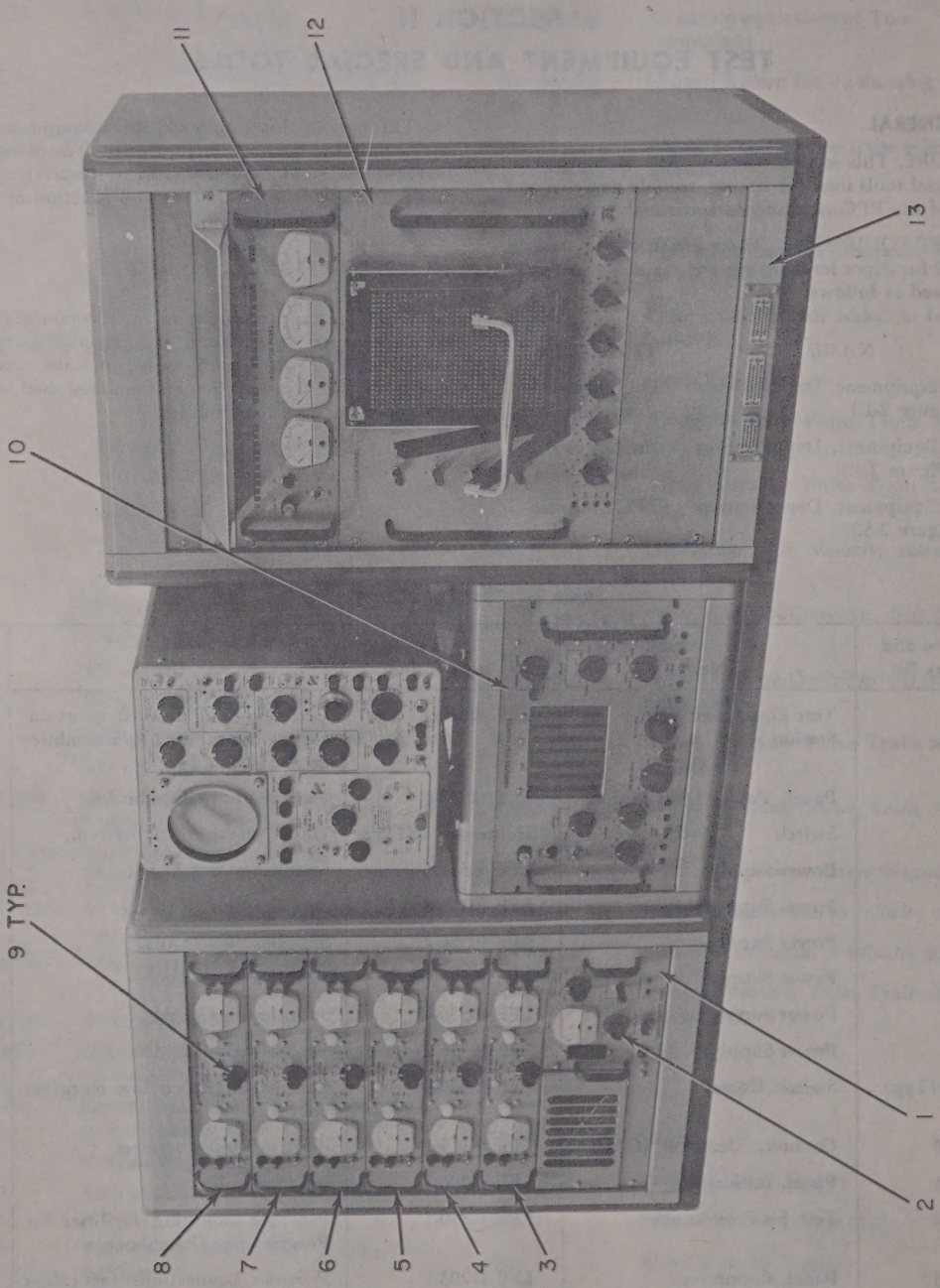


Figure 2-1. Test Equipment, Depot-Station 5

Table 2-1. Test Equipment (Cont.)

Figure and Index No.	Name	Mfr's Designation	Use	Qty
	Bench, Radar Maintenance	LFE 47637-1	Provides mounting facilities for test apparatus and subassemblies under test.	1
Standard	Oscilloscope	TEKX 545A	Displays waveforms and measures peak to peak voltage.	1
Standard	Voltmeter, Electron Tube	HP 410B	General purpose rms voltage measurements.	1
2-2, 1	Cable Assembly		Connect card to the test station.	1
2-2, 2	Adapter, Test	LFE 50216-1	Shapes input.	1
2-2, 3	Adapter, Test	LFE 50332-1	Null reset.	1
2-2, 4	Adapter, Test	LFE 53149-1	27 kc oscillator also simulates the input of the 2108 card.	1
2-2, 5	Adapter, Test	LFE 50248-1	Binary multiplier.	1
2-2, 6	Adapter, Test	LFE 50233-1	Load resistance.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2101	LFE 50462-1	Simulates operation of card 2101 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2102	LFE 50463-1	Simulates operation of card 2102 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2103	LFE 50464-1	Simulates operation of card 2103 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2104	LFE 50465-1	Simulates operation of card 2104 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2105	LFE 50466-1	Simulates operation of card 2105 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2106	LFE 50467-1	Simulates operation of card 2106-1 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2107/17	LFE 50468-1	Simulates operation of cards 2107 and 2117 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2108	LFE 50469-1	Simulates operation of card 2108 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2109/A	LFE 50470-1	Simulates operation of card 2109 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2109/B	LFE 50471-1	Continuity check.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2110/18/A	LFE 50472-1	Simulates operation of cards 2110 and 2118 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2110/18/B	LFE 50473-1	45° test.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2111	LFE 50474-1	Simulates operation of card 2111 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2112/19	LFE 50475-1	Simulates operation of cards 2112 and 2119 in the PPC Unit.	1

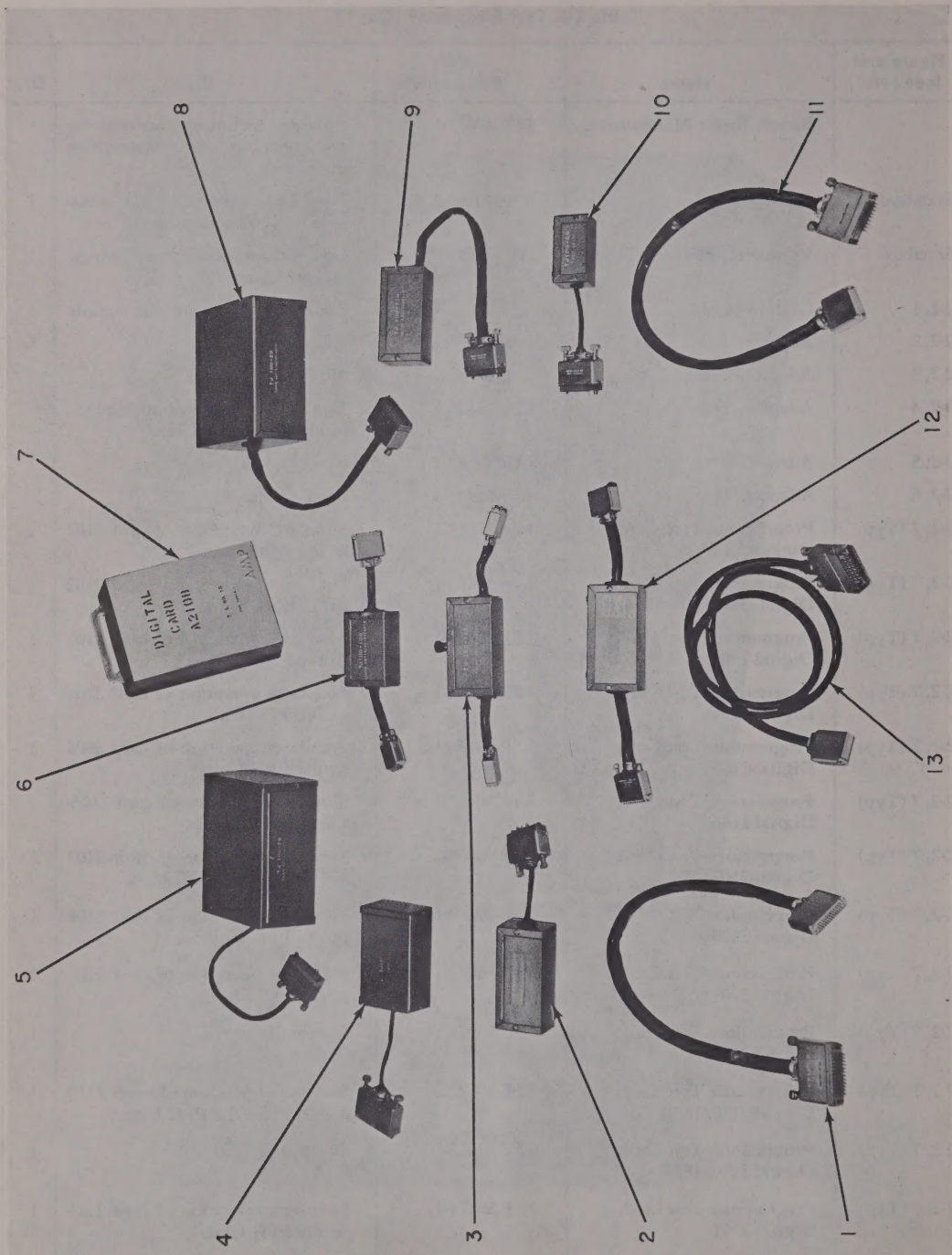


Figure 2-2. Test Equipment, Depot-Station 5 Accessories

Table 2-1. Test Equipment (Cont.)

Figure and Index No.	Name	Mfr's Designation	Use	Qty
2-2, 7 (Typ)	Programmer-Test Card, Digital-2113	LFE 50476-1	Simulates operation of card 2113-1 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2114	LFE 50477-1	Simulates operation of card 2114-1 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2115/20	LFE 50478-1	Simulates operation of cards 2115 and 2120 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2116	LFE 50479-1	Simulates operation of card 2116 in the PPC Unit.	1
2-2, 7 (Typ)	Programmer-Test Card, Digital-2129	LFE 50480-1	Simulates operation of the digital portion of card 2129 in the PPC Unit.	1
2-2, 8	Adapter, Test	LFE 50252-1	Simulates operation of card 2114 and relays in the PPC Unit.	1
2-2, 9	Adapter, Test	LFE 50344-1	Simulates 1/2 BO, also shapes input pulse.	1
2-2, 10	Adapter, Test	LFE 50220-1	Shapes output pulses.	1
2-2, 11	Cable Assembly		Connects card to the test station.	1
2-2, 12	Adapter, Test	LFE 50223-1	Simulates 2113-1 card load.	1
2-2, 13	Cable Assembly		Connects card to the test station.	1
2-3	Test Equipment Depot-Station 14	LFE 50176-1	Performs test required to evaluate the analog card subassemblies in the PPC Unit.	1
2-3, 1	Power Supply	LFE 40556-2	Supplies plus 44 vdc.	1
2-3, 2	Power Supply	LFE 40556-4	Supplies plus 34 vdc.	1
2-3, 3	Power Supply	LFE 40556-7	Supplies plus 22 vdc.	1
2-3, 4	Power Supply	LFE 40556-8	Supplies plus 18 vdc.	1
2-3, 5	Power Supply	LFE 40556-3	Supplies minus 44 vdc.	1
2-3, 6	Power Supply	LFE 40699-1	Supplies plus 28 vdc at 8 amp.	1
2-3, 7	Cabinet, Electrical Equipment	EMCO FR-14A (3 comb)	Houses test equipment and power supplies.	3
2-3, 8	Test Set, Electronic Card 2129	LFE 50310-1	Simulates operation of the analog portion of card 2129 in the PPC Unit.	1
2-3, 9	Counter, Electrical	Berkl 7370R	Measures pulse rates and transmission-rate frequencies.	1
2-3, 10	Ratio Transformer	Gertsch RT-10R	Adjusts voltage input to card subassemblies.	1
2-3, 11	Test Set, Electronic Circuit Card 2141	LFE 50312-1	Simulates operation of card 2141 in the 131 configuration of the PPC Unit.	1

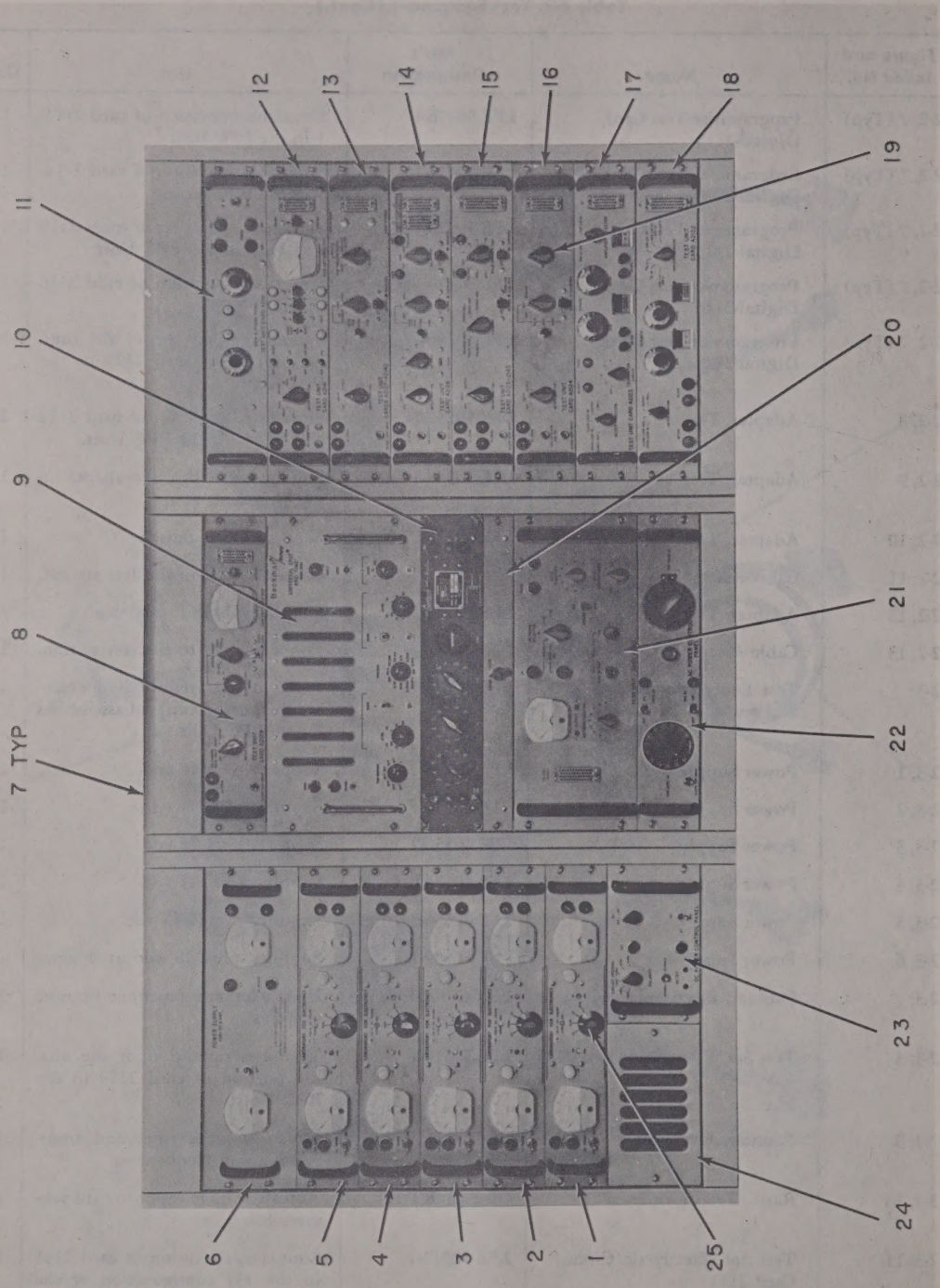


Figure 2-3. Test Equipment, Depot-Station 14

Table 2-1. Test Equipment (Cont.)

Figure and Index No.	Name	Mfr's Designation	Use	Qty
2-3, 12	Panel, Test Electronic Circuit Card 2141	LFE 53323-1	Checks gain and phase on card 2141 in the 131 configuration of the PPC Unit.	1
2-3, 13	Test Set, Electronic Circuit Card 2127/2140	LFE 50306-1	Simulates operation of card 2127 in the 105 configuration and card 2140 in the 131 configuration of the PPC Unit.	1
2-3, 14	Test Set, Electronic Circuit Card 2126	LFE 50244-1	Simulates operation of card 2126-1 in the PPC Unit.	1
2-3, 15	Test Set, Electronic Circuit Card 2125/2145	LFE 50240-1	Simulates operation of cards 2125/2145 in the AN/APN 105 and AN/APN 131 card subassemblies of the PPC Unit.	1
2-3, 16	Test Set, Electronic Circuit Card 2124	LFE 50242-1	Simulates operation of card 2124 in the PPC Unit.	1
2-3, 17	Test Set, Electronic Circuit	LFE 53132-1	Simulates operation of 2123-1 in the PPC Unit.	1
2-3, 18	Test Set, Electronic Circuit Card 2122	LFE 53558-1	Simulates operation of card 2122-2 in the PPC Unit.	1
2-3, 19	Resistor VAR	LFE 7709-35	Null-Quad-Gain adjust.	1
2-3, 20	Panel, Switching		Connects the 2122-2 or the 2123-1 cards for programming to the Ratio Transformer.	1
2-3, 21	Test Set, Electronic Circuit Card 2128	LFE 40664-1	Simulates operation of card 2128-1 in the PPC Unit.	1
2-3, 22	Panel, Power Distribution-AC	LFE 50375-1	Supplies ac power to card subassembly under test.	1
2-3, 23	Panel, Power Distribution-DC	LFE 50162-1	Supplies dc power to card subassembly under test.	1
2-3, 24	Blower Assembly	LFE 40871-1	Supplies cooling air to test station.	1
2-3, 25 (Typ)	Switch, Rotary	LFE 40679-9	Controls high and low marginal voltages.	5
	Bench, Radar Maintenance	LFE 476374	Provides mounting facilities for test apparatus and subassemblies under test.	1
Standard	Oscilloscope	TEKX 545A	Displays waveforms and measures peak to peak voltage.	1
Standard	Dolly, Test Equipment	TECHNIBILT OC-1-B	Supports Oscilloscope.	1
Standard	Voltmeter, Electron Tube	HP 400D	General purpose rms voltage measurements.	1
Standard	Preamplifier, Plug-In	TEKX 53/54L	Used with oscilloscope to obtain dual trace: also adjusts sensitivity.	1

Table 2-1. Test Equipment (Cont.)

Figure and Index No.	Name	Mfr's Designation	Use	Qty
Standard	Multimeter	TRIPLETT 630	Volt-ohm-milliammeter.	1
2-4, 1	Cable Assembly	LFE-53442-10	Connects card subassemblies 2122-2, 2125, 2128-1 and 2145 to the test station.	1
2-4, 2	Cable Assembly		Connects the Scope Hor Input on the AC Power Control Panel to the External Sweep In on the oscilloscope.	1
2-4, 3	Cable Assembly	LFE 53442-2 53442-6	Connects card subassemblies 2123-1, 2124, 2126-1, 2127, 2129, 2140-1 and 2141 to the test station.	2
2-4, 4	Cable Assembly		Connects voltmeter and AC VTVM to the oscilloscope.	1
2-4, 5	Cable Assembly		Connects the Beckman/Berkeley Universal Eput and Timer and the scope vert input to the oscilloscope.	1
2-4, 6	Cable Assembly		Connects the oscilloscope to the scope vert input connectors.	1
2-4, 7	Cable Assembly		Connects the TAS output (2126 panel) to the Beckman/Berkeley Universal Eput and Timer. Connects the HFO connector (2124 panel) to the Beckman/Berkeley Universal Eput and Timer.	1
2-5	Test Equipment, Depot-Station 7	LFE 50156-1	Performs tests required to evaluate the Computer Group in the AN/APN-105 and AN/APN-131 systems.	1
2-5, 1	Plenum Chamber	LFE 40884-1	Test mount for PPC.	1
2-5, 2	Panel, Power Distribution	LFE 40877-1	Power supply distribution	1
2-5, 3	Power Supply	LFE 40556-3	Supplies minus 44 vdc.	1
2-5, 4	Power Supply	LFE 40556-6	Supplies minus 27 vdc.	1
2-5, 5	Power Supply	LFE 40556-2	Supplies plus 44 vdc.	1
2-5, 6	Power Supply	LFE 40556-4	Supplies plus 34 vdc.	1
2-5, 7	Power Supply	LFE 40556-8	Supplies plus 18 vdc.	1
2-5, 8	Power Supply	LFE 40556-9	Supplies plus 22 vdc.	1
2-5, 9	Power Supply	LFE 40615-1	Supplies plus 28 vdc.	1
2-5, 10	Counter, Electrical ID-616	LFE 43421-1 LFE 60366-1	Electrical pulse counter.	1

Table 2-1. Test Equipment (Cont.)

Figure and Index No.	Name	Mfr's Designation	Use	Qty
STANDARD	Oscilloscope	Tektronix 545A	Displays waveforms and measures peak-to-peak-voltage.	1
STANDARD	Preamplifier, Plug-In	Tektronix 53/54L	Used with oscilloscope to obtain dual trace; also adjusts sensitivity.	1
STANDARD	Dolly, Test Equipment	Technibilt OC-1-B	Supports oscilloscope.	1
2-6, 1	Adapter, 35 Pin	LFE 50401-1	Breakout cable for cards.	1
2-6, 2	Adapter, 50 Pin	LFE 50402-1	Breakout cable for cards.	1
2-6, 3	Adapter, Course Computer		Breakout cable.	1
2-6, 4	Adapter, Test	LFE 40993-1	Tests AN/APN-105 PPC.	1

Table 2-2. Special Tools

Figure and Index No.	Part No.	Nomenclature	Use and Application
2-7, 1	—	Turret Terminal Holder	Holds turret terminal in proper alignment with printed circuit board for peening.
2-7, 2	58771-1	Peening Tool	Peens over eyelets and rivets to secure them to printed circuit boards.
2-7, 3	—	Drill Blank Tool	Clears printed-circuit eyelets of solder.
2-7, 4	27538	Soldering Aid Tool (modified)	Serves as a lever to raise parts for unsoldering and removal from printed circuit boards.
2-7, 5	—	Lifter Bar	Lifts transistors to facilitate unsoldering leads for removal.

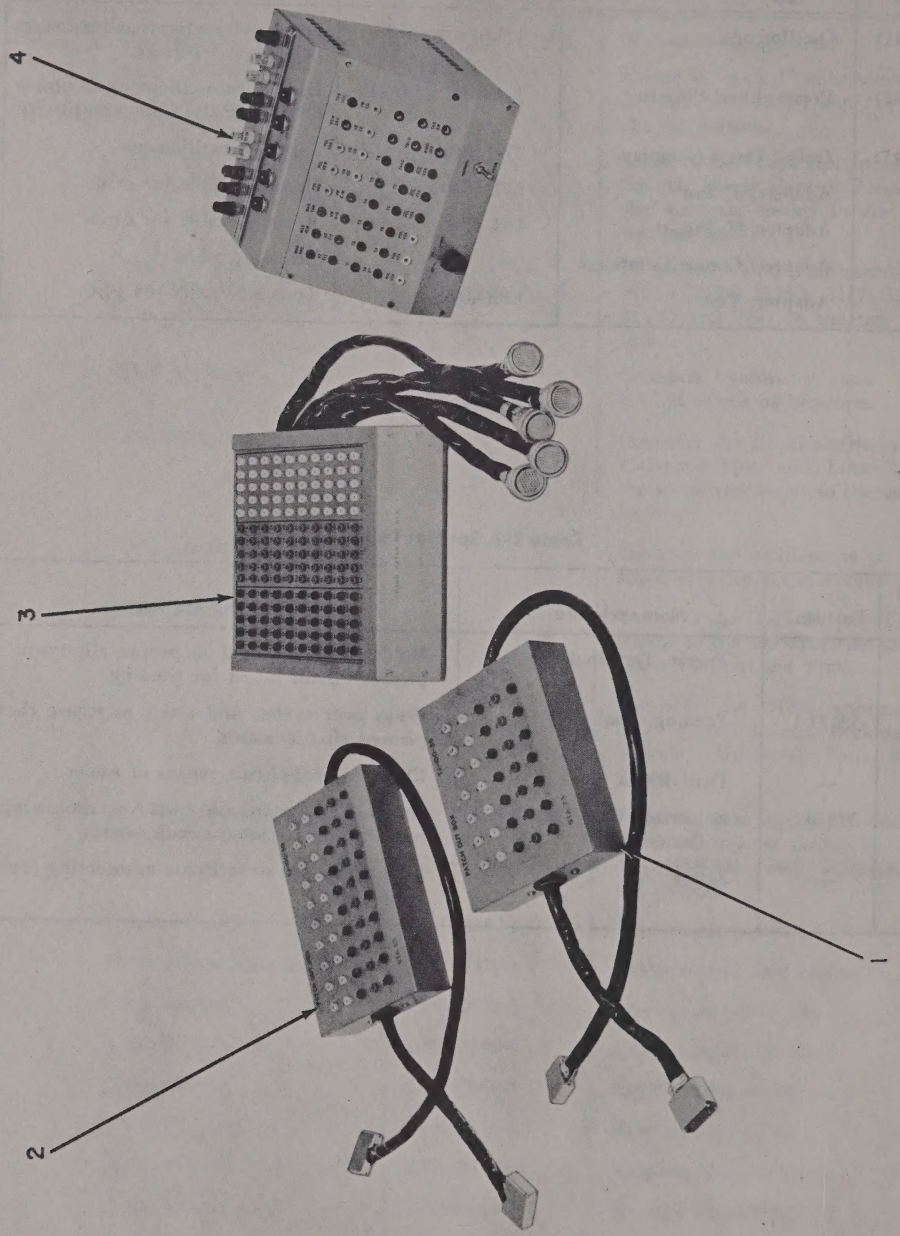


Figure 2-6. Depot-Station 7, Accessories

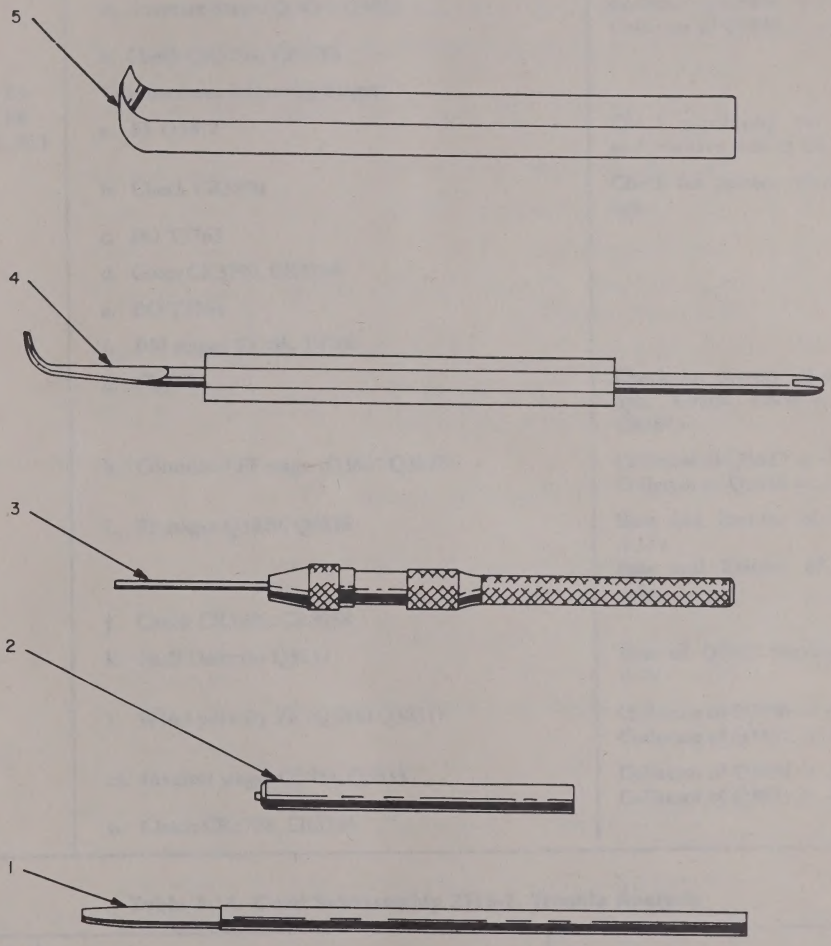


Figure 2-7. Special Tools, Printed Circuit Assembly

Table 3-13. Card Subassembly 2112/19, Trouble Analysis (Cont.)

Step	Output Eyelet	Instructions	Detailed Instructions
33 (Cont.)		k. Null Detector stage Q3832	Base of Q3832 varying +5v to +7v
		l. Wind Polarity FF (Q3830 Q3831)	Collector of Q3830 = +7v Collector of Q3831 = +19v
		m. Inverter Stages Q3834, Q3833	Collector of Q3834 = +44v Collector of Q3833 = +22v
		n. Check CR3794, CR3785	
34	E2, E3 E6, E8 E11, E13	Troubleshoot following Stages:	
		a. EF Q3812	Check continuity between E22 and positive side of CR3808
		b. Check CR3800	Check for correct reference voltage
		c. BO T3763	
		d. Gates CR3799, CR3798	
		e. BO T3764	
		f. BM stages T3765, T3766	
		g. CR3804	Check for correct reference voltage; Check CR3812, CR3809, CR3813
		h. Command FF stage (Q3827 Q3828)	Collector of Q3827 = +5v Collector of Q3828 = +17v
		i. EF stages Q3829, Q3826	Base and Emitter of Q3829 = +17v Base and Emitter of Q3826 = +5v
		j. Check CR3939, CR3938	
		k. Null Detector Q3832	Base of Q3832 varying +5v to +7v
		l. Wind polarity FF (Q3830 Q3831)	Collector of Q3830 = +7v Collector of Q3831 = +19v
		m. Inverter stages Q3834, Q3833	Collector of Q3834 = +22v Collector of Q3833 = +44v
		n. Check CR3798, CR3785	

Table 3-14. Card Subassembly 2113-1, Trouble Analysis

Step	Output Eyelet	Instructions	Detailed Instructions
1		None	None
2	E1	Check synchronizer stage T3751 and BO stage T3769	See basic circuit troubleshooting procedure
3	E1	Check BM stages T3770, T3771 and T3772	Same as step 2
4	E1	Check BM stages T3773, T3774, T3775, T3776 and T3777	Same as step 2

Table 3-14. Card Subassembly 2113-1, Trouble Analysis (Cont.)

Step	Output Eyelet	Instructions	Detailed Instructions
5	E2	Check CR3872	Check for proper forward and reverse resistance
6	E2	Check CR3874, CR3876, CR3878, CR3886 and CR3888	Same as step 5
7	E2	Check CR3880, CR3882 and CR3884	Same as step 5
8	E8	Check CR3761, CR3765, CR3769, CR3773, CR3777 and CR3781	Same as step 5
9	E8	Check BO stage T3752. BM stages T3753 through T3760	Same as step 2
10	E8	Check CR3761, CR3765 and CR3769	Same as step 5
11	E8	Check CR3773, CR3777 and CR3781	Same as step 5
12	E30	Check BM stage T3759	Same as step 2
13	E9	Check CR3764, CR3768, CR3772, CR3776, CR3779 and CR3783	Same as step 5
14	E9	Same as step 9	Same as step 9
15	E9	Check CR3764, CR3768 and CR3772	Same as step 5
16	E9	Check CR3776, CR3779 and CR3783	Same as step 5
17	E11	Check K3751	Check contacts for continuity
18	E60	Check jumper wire between E11 and E60	
19	E13	Check K3751	Same as step 17
20	E61	Check jumper wire between E13 and E61	
21	E17	Check K3752	Same as step 17
22	E62	Check jumper wire between E17 and E62	
23	E16	Check K3752	Same as step 17
24	E63	Check jumper wire between E16 and E63	
25	E5	Check K3753	Same as step 17; also check coil for proper resistance
26	E5	Same as step 25	Same as step 25
27	E5	Same as step 25	Same as step 25
28	E5	Same as step 25	Same as step 25
29	E18	Check K3752	Check for open coil or open contacts
30	E21	Check K3752	Same as step 17
31	E6	Check K3751	Same as step 29
32	E14	Check K3752	Same as step 17
33	E5	Check CR4072	Same as step 5
34	E5	Same as step 33	Same as step 33
35	E17	Check CR4071	Same as step 33
36	E11	Check CR4071	Same as step 33

Table 3-16. Card Subassembly 2115/20, Trouble Analysis (Cont.)

Step	Output Eyelet	Instructions	Detailed Instructions
		Check differencing flip flop Q4679, Q4680	Collector of Q4679 = +5v, Q4680 = +17v.
		Check pulse gate Q4672 for 5v on the base	1094 + pulses on the collector.
		Check error flip flop Q4681, Q4682	Collector of Q4681 = +5v, Q4682 = +17v.
		Check 1st stage of the forward-backward counter Q4683, Q4686	See troubleshooting procedure for basic flip flop circuit.
4	E4	Check blocking oscillators:	
		T4651	Check CR4652.
		T4652	Check CR4654.
		T4653	Output = 5kc.
		T4656	Output = 625 pps.
			See troubleshooting procedure for basic flip flop circuit.
		Check binary multipliers, T4654, T4655, T4657 and T4658	See troubleshooting procedure for basic binary multiplier circuit.
		Check blocking oscillators T4659, T4660	Positive pulse output = 156 pps. Positive pulse output = 1250 pps.
5	E4	Check command flip flop Q4676, Q4677	See troubleshooting procedure for basic flip flop circuit.
6	E4	Same as step 5	Same as step 5.
7	E4	Check 1st stage in the forward-backward counter Q4683, Q4686	Same as step 5.
8	E4	Check 2nd stage of the forward-backward counter Q4687, Q4690	Check CR4679. Forward command line = +17v, backward command line = +5v.
9	E9	Check 3rd stage of the forward-backward Q4691, Q4692	Check CR4681.
10	E11	Check 4th stage in the forward-backward counter Q4695, Q4696	Check CR4683.
11	E12	Check 5th stage in the forward-backward counter Q4698, Q4699	Check CR4685.
12	E14	Check 6th stage in the forward-backward Q4701, Q4702	Check CR4687.
13	E16	Check 7th stage in the forward-backward counter Q4704, Q4706	Check CR4689.
14	E18	Check 8th stage in the forward-backward counter Q4707, Q4709	Check CR4691.
15	E19	Check 9th stage in the forward-backward counter Q4710, Q4712	Check CR4693.
16	E19	No input pulses; same as step 1	
17	E24	Check Q4667	Transistor cut off. Collector = 0v.

Table 3-16. Card Subassembly 2115/20, Trouble Analysis (Cont.)

Step	Output Eyelet	Instructions	Detailed Instructions
18	E24	Check null buss for proper voltage at base of Q4659	Should rise to 17v, then return to 6v.
		Check null buss emitter follower Q4659	Emitter and base rise to 17v, then returns to 6v.
		Check null flip flop Q4662, Q4661 for proper voltage level	Q4661 = +5v. Q4662 = +17v.
		Check null flip flop emitter followers Q4663, Q4664	Q4663 = +17v. Q4664 = +5v.
		Check Q4667	Transistor conducts. +18v on collector.
19	E24	Check Q4667	Transistor cut off. 0v on collector.
20		Check relay drivers Q4697, Q4700, Q4702, Q4705, Q4708, Q4711. A binary progression should be observed on the Count "A" lights on the test panel	See troubleshooting procedure for basic relay driver circuit.
	E3	Check null flip flop inverter Q4666	Collector = +22v. Transistor conducts.
21	E3	Same as step 20	Collector = +44v. Transistor cut off.
22	E3	Same as step 20	Collector = +22v. Transistor conducts.
23	E4	Check null emitter follower inverter Q4660 also CR4670	See troubleshooting procedure for basic decoder inverter circuit.
24	E3	Same as step 23	
25	E3	Same as step 23	
26	E3	Check null flip flop Q4661, Q4662	Q4661 = +17v. Q4662 = +5v.
27	E4	Check error flip flop Q4681, Q4682	Observe 2 to 1 ratio on the collector of Q4681.
		Check transistor gate Q4672	1 pulse passes while base is at +5v. 1 pulse passes while base is at +5v.
28	E4	Check error flip flop Q4681, Q4682	Q4681 = +5v. Q4682 = +17v.

Table 3-17. Card Subassembly 2116, Trouble Analysis

Step	Output Eyelet	Instructions	Detailed Instructions
1 thru 9		When a light fails to give a proper indication, locate the output eyelet corresponding to the improper indication by using Table 3-1. Follow the output back to the associated circuitry and troubleshoot per the basic circuit troubleshooting procedure.	C0 and C1 thru C8 outputs are connected to the COUNT "A" lights as follows: No. 1 light = C0 at E39 No. 2 light = C1 at E9 No. 4 light = C2 at E6 No. 8 light = C3 at E5 No. 16 light = C4 at E2 No. 32 light = C5 at E11 No. 64 light = C6 at E13

Table 3-26. Card Subassembly 2129, Trouble Analysis (Digital Portion)

Step	Output Eyelet	Instructions	Detailed Instructions
1	None	Check test equipment for proper operation	
2	E25	Check B0 stage Q1876, FF stages (Q1880 Q1881), (Q1882 Q1883), pulse gate stages Q1877, Q1878 also Q1879 pulse inverter.	See basic circuit troubleshooting procedure
3	E25	Check FF stages (Q1880, Q1881), (Q1882 Q1883).	Same as step 2
4	E25	Check B0 stage Q1885, FF stages (Q1880 Q1881), (Q1882 Q1883), pulse gate stages Q1886, Q1887 also Q1884 pulse inverter.	Same as step 2
5	E26	None	
6	E26	Same as step 2	Same as step 2
7	E26	Same as step 4	Same as step 2
8	E26	Same as step 4	Same as step 2

Table 3-27. Roll-Pitch Resolution, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-10, a-f	ROLL	1. 2. 3.	2126-1 2101 2104	Check power and ground leads, test station to PPC. Check Q1301 and K1301 located on the front panel of the PPC before replacing the roll converter.
g	PITCH	1. 2. 3. 4.	2127 2101 2103 2104	Check power and ground leads, test station to PPC. Check Q1301 and K1301 located on the front panel of the PPC before replacing the Pitch converter.
h-dd	± Vx	1. 2. 3.	2102 2103 2108	
	± Vy	1. 2. 3.	2102 2104 2108	

Table 3-28. Heading Resolution, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-12, a-c	Heading	1. 2. 3. 4. 5. 6. 7. 8.	2124 2116 2110 2118 2113-1 2109 2112 2119	Check power and ground leads, test station to PPC

Table 3-28. Heading Resolution, Troubleshooting (Cont.)

Test from Section IX	Test Function	Procedure
9-12, d-h	Ve	see note 1
	Vw	see note 5
	Vn	see note 1
	Vs	see note 5
i-j	Ve	see note 1
	Vw	see note 5
	Vn	see note 1
	Vs	see note 5
k-l	Ve	see note 2
	Vw	see note 5
	Vn	see note 1
	Vs	see note 3
9-12-m-n	Ve	see note 2
	Vw	see note 5
	Vn	see note 1
	Vs	see note 3
o-p	Ve	see note 4
	Vw	see note 2
	Vn	see note 5
	Vs	see note 3
q-r	Ve	see note 4
	Vw	see note 2
	Vn	see note 5
	Vs	see note 3
s-t	Ve	see note 5
	Vw	see note 4
	Vn	see note 3
	Vs	see note 1
u-v	Ve	see note 2
	Vw	see note 5
	Vn	see note 4
	Vs	see note 5
w-x	Ve	see note 5
	Vw	see note 5
	Vn	see note 5
	Vs	see note 5

NOTE Sequence of card changes for following steps (Heading Resolution)

	1st	2nd	3rd	4th	5th	6th
1	2218	2109	2116	2113-1	2108	
2	2110	2109	2116	2113-1	2108	
3	2110	2109	2118	2116	2113-1	2108
4	2118	2109	2110	2116	2113-1	2108
5	2109	2118	2110	2116	2113-1	2108

Table 3-29. Wind Memory, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-14, a-e		1. 2.	 2126-1	 Adjust R4154 on 2126-1 card
f-p		1. 2. 3.	2119 2113-1 2112	
q-m		1. 2. 3.	2112 2113-1 2119	
v-z		1. 2. 3.	2119 2113-1 2112	
aa-ee		1. 2. 3.	2112 2113-1 2119	
ff-jj		1. 2. 3.	2119 2113-1 2112	
kk-rr		1. 2. 3.	2119 2113-1 2112	

Table 3-30. Slewing Test, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-16, a-u	Latitude	1. 2. 3. 4.	2126-1 2125 2107 2108	
	Longitude	1. 2. 3. 4.	2127 2125 2117 2108	

Table 3-31. Secant Latitude Test, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-18, a-p	$\frac{\text{Ve-w Sec. Lat.}}{8}$	1. 2. 3. 4.	2129 2106-1 2109 2105	

Table 3-32. Course Angle and Distance to Go, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-21, Table 9-2 step 1-9		1. 2. 3. 4.	2124 2123-1 2122-2 2125	

Table 3-33. Drift Angle, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-24, d	"FORWARD" "RIGHT"	1. 2. 3. 4. 5.	2115 2114-1 2128-1 2122-2 2125	
	"FORWARD" "LEFT"	1. 2. 3. 4. 5.	2120 2114-1 2128-1 2122-2 2126-1	

Table 3-34. Dynamic Heading, Troubleshooting

Test from Section IX	Test Function	Procedure	Sequence of Card Changes	Remarks
9-26, a-j	Ground Track	Ground track sticks on east and west		
		1. 2. 3.	2115 2122-2 2125	
		Ground track sticks on north and south		
		1. 2. 3.	2120 2123-1 2126-1	
		Track is jumpy while rotating		
		1. 2. 3. 4.	2115 2120 2128-1 2114	
		Track will go north but not south and vice versa		
		1. 2.	2125 2115	

SECTION VII
REPAIR AND REPLACEMENT

7–1. GENERAL.

7–2. SCOPE. This section provides instructions for repairing or replacing the subassemblies and parts of the PPC Unit which do not meet satisfactory service requirements. Included in this section is information pertinent to the repair of printed circuit assemblies. Parts which seem doubtful should be replaced. Consult the applicable illustrated parts breakdown for proper identification of parts.

7–3. REPAIR OF PRINTED CIRCUIT ASSEMBLIES AND SUBASSEMBLIES. Repair of printed circuits involves the replacement of components and the repair of printed circuit wiring. Special procedures must be used for removal and installation since all parts used are of the subminiaturized type, many of which are located in almost inaccessible locations.

7–4. SPECIAL PROCEDURES. These procedures are contained in three basic steps.

a. Removal of parts.

b. Installation of parts.

c. Application and cleaning of epoxy resin.

CAUTION

a. When using a hot soldering iron on any type printed circuit board, it is essential that Soldering Flux (Kester Formula No. 1571) be applied to that area. Otherwise, irreparable damage will be caused by application of excessive heat.

b. It is important that solder adhere to both members being joined.

7–5. REMOVAL AND METHOD OF ACCESS TO PARTS.

7–6. ACCESS TO PARTS UNDER MODULE ASSEMBLY. (See figure 7–1). In order to allow easier access to the part, the parts on the edge of the module may be unsoldered at the top and bent aside. Whenever possible remove bus wires in preference to components. Bus wires may be removed completely and later replaced.

7–7. SHIFTING MODULE ASSEMBLY. (See figure 7–2). When the part to be removed is mounted inaccessibly under or close to a module assembly, the module assembly may be shifted slightly to one side. A slight pressure with both thumbs is all that is necessary. Do not use tools.

CAUTION

Extreme care should be exercised when shifting module assemblies to one side. Severe damage will otherwise be caused to printed circuit components and leads. When this method is utilized, accomplish all necessary repairs and replacement before shifting module into original position.

7–8. UNSOLDERING MULTIPLE-LEAD COMPONENTS. (See figure 7–3). When unsoldering transistors and transformers mounted on the board use Lifter-bar (5, figure 2–7). For example, touch solder iron briefly and alternately at each terminal while applying gentle pressure with Lifter-bar on underside of transistor. Continue procedure until transistor is free. Do not hold solder iron on any one terminal longer than necessary to melt solder.

7–9. UNSOLDERING PARTS ON UNDERSIDE OF MODULE. (See figure 7–4). When unsoldering parts mounted on underside of module, use soldering aid tool (4, figure 2–7) as means of leverage while alternately applying soldering iron to terminals of part to be removed.

7–10. EYELET CLEANING. (See figure 7–5). After removal of part, melt solder in eyelet hole and push through with Drill Blank tool, (3, figure 2–7) for thorough cleaning. Solder will not adhere to Drill Blank tool.

7–11. EYELET, TURRET TERMINAL, AND RIVET REMOVAL. When eyelets, turret terminals and rivets are to be removed from printed circuit boards they may be drilled out. If eyelet or turret terminal is loose, flange may be cut and item dropped through baseboard. Use undersize drill for drilling out rivets.

7–12. BASIC TECHNIQUES OF PARTS INSTALLATION.

7–13. STANDARD METHOD. (See figure 7–6). The standard method for mounting a circuit component is to mount it flush to baseboard. There are circuit components, however, which develop a high degree of heat so that they must be mounted with an adhesive teflon

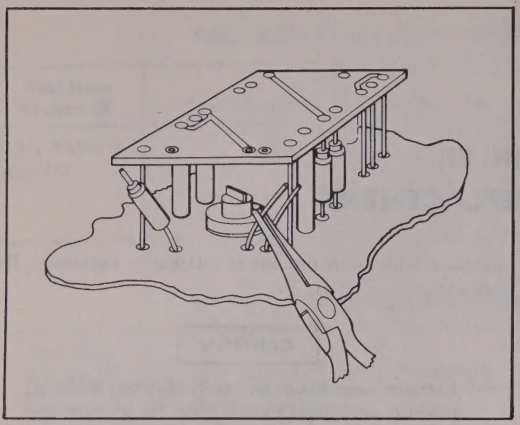


Figure 7–1. Access to Area Under Module Assembly

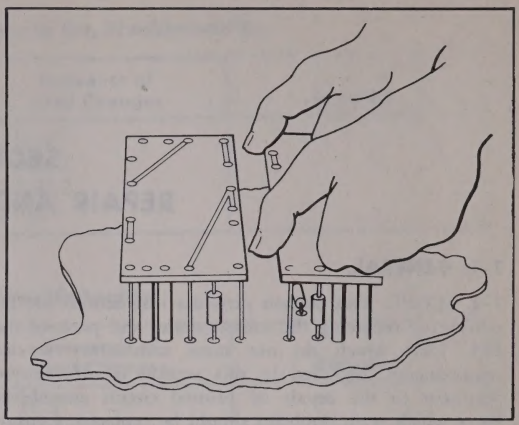


Figure 7–2. Shifting Module Assembly

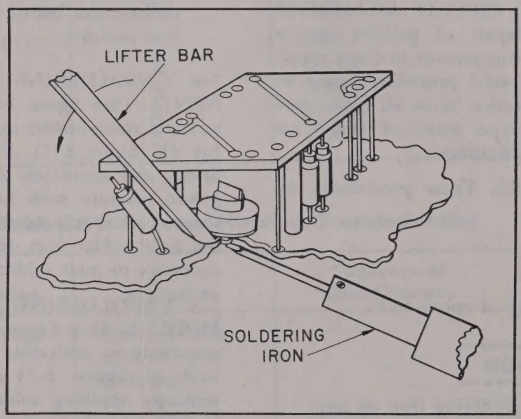


Figure 7–3. Unsoldering Multiple-Lead Components

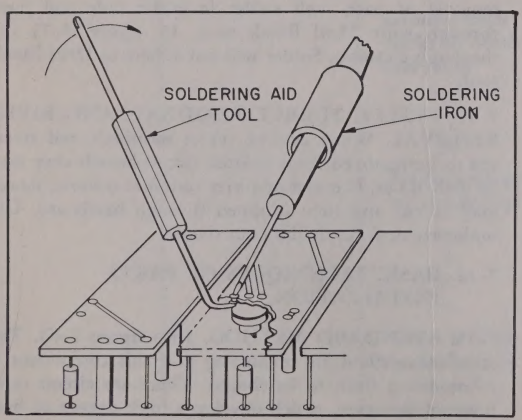


Figure 7–4. Unsoldering Parts on Underside of Module Assembly

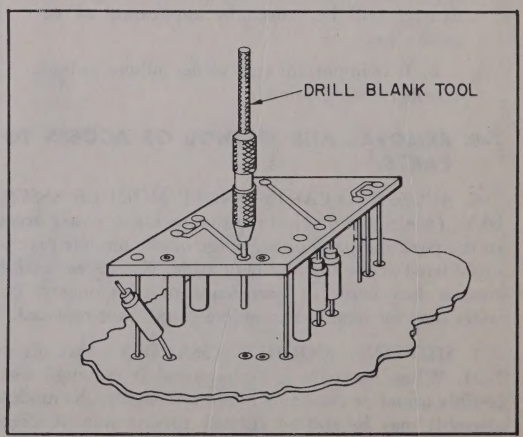


Figure 7–5. Eyelet Cleaning

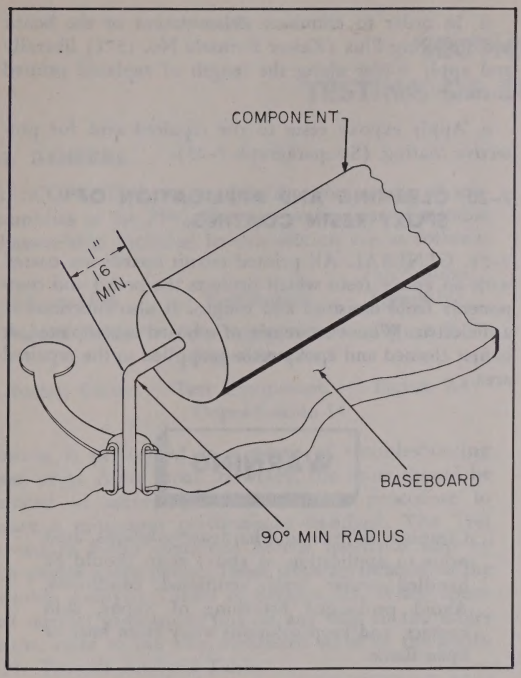


Figure 7–6. Standard Method of Installation

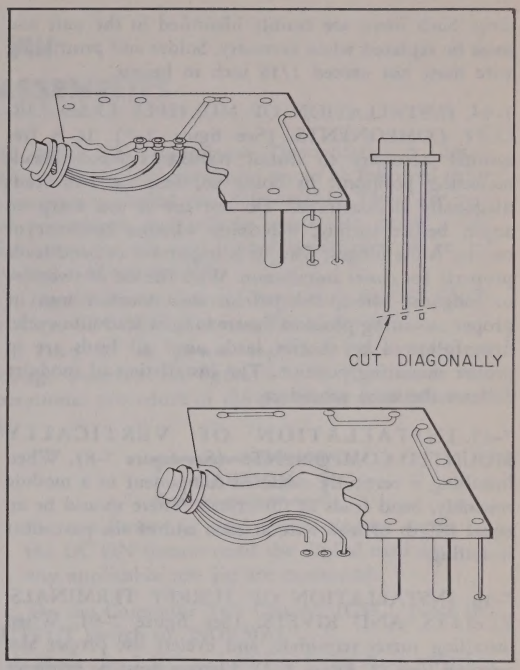


Figure 7–7. Installation of Multiple-Lead Components

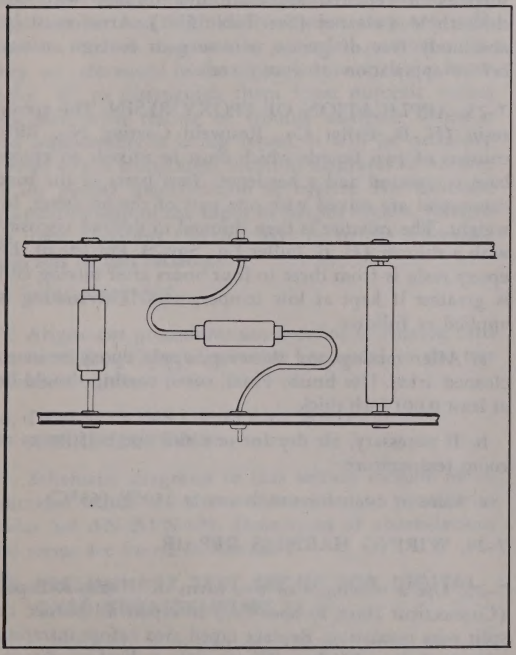


Figure 7–8. Installation of Vertically Mounted Components

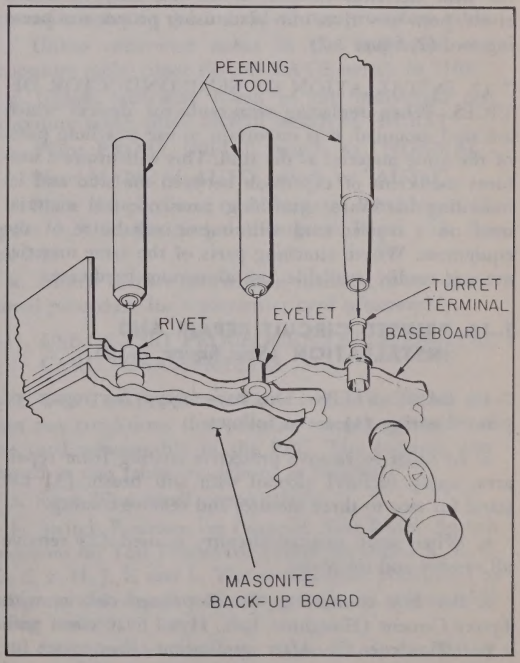


Figure 7–9. Installation of Turret Terminals, Eyelets, and Rivets

strip. Such items are readily identified in the unit and must be replaced when necessary. Solder and protruding wire must not exceed 1/16 inch in height.

7–14. INSTALLATION OF MULTIPLE LEAD CIRCUIT COMPONENTS. (See figure 7–7). It is frequently necessary to install transistors into difficult mounting positions. In doing so, first cut two leads diagonally as illustrated. Do not cut at too sharp an angle. before cutting, determine whether collector or emitter is the longest lead. It is important to bend leads properly for easier installation. With the aid of tweezers or longnose pliers, the part is then worked into its proper mounting position. Insert longest lead into eyelet first, followed by shorter leads until all leads are in proper mounting position. The installation of modules follows the same procedure.

7–15. INSTALLATION OF VERTICALLY MOUNTED COMPONENTS. (See figure 7–8). When installing a vertically mounted component in a module assembly, bend leads as illustrated. There should be an equal length of lead wire at each end of the part after installing.

7–16. INSTALLATION OF TURRET TERMINALS, EYELETS, AND RIVETS. (See figure 7–9). When installing turret terminals, and eyelets use proper size peening tool (1, figure 2–7). Flanges must be in direct contact with printed circuit after peening. Apply solder for firm electrical contact. When necessary to install rivets, peen new rivet into place using proper size peening tool (2, figure 2-7).

7–17. INSTALLATION OF SEMICONDUCTOR DEVICES. When replacing semiconductor devices which are stud mounted, it is important to use attaching parts of the same material as the stud. This will insure a uniform coefficient of expansion between the stud and its mounting hardware. Attaching parts of steel material used on a copper stud will impair reliability of the equipment. Where attaching parts of the same material are not readily available, use aluminum hardware.

7–18. PRINTED CIRCUIT REPAIR AND INSTALLATION (See figure 7–10).

7–19. BASIC STEPS. The basic steps for repair of printed wiring (1) are as follows:

a. In order to remove protective coating from repair area, apply furfuryl alcohol with stiff brush. (3) Let stand for two to three minutes and remove coating.

b. When scrap printed circuitry is used (2) remove all residue and tin plate.

c. For firm connection, install printed circuits with Epoxy Cement (Houghton Lab., Hysol 6020 clean with 1 part Hardener C). After application allow to set for four hours. Overlap printed circuitry a minimum of one-half inch at each end (4). Do not allow epoxy cement to flow under overlap of printed circuitry.

d. In order to eliminate delamination of the board use Soldering Flux (Kester Formula No. 1571) liberally and apply solder along the length of replaced printed circuitry (5).

e. Apply expoxy resin to the repaired area for protective coating. (See paragraph 7–23).

7–20. CLEANING AND APPLICATION OF EPOXY RESIN COATING.

7–21. GENERAL. All printed circuit boards are coated with an epoxy resin which protects the board and components from moisture and fungus. It also functions as a dielectric. Whenever repair of a board is completed, it is first cleaned and epoxy resin is applied to the repaired area.

WARNING

Cleaning, thinner, and hardener solutions, used prior to application of epoxy resin should be handled under well ventilated conditions. Avoid prolonged breathing of vapor, skin contact, and keep solutions away from heat or open flame.

7–22. CLEANING PRINTED CIRCUIT BOARDS. The surfaces of repaired areas are first cleaned with trichlorethylene cleaner (See Table 5–1). Areas must be absolutely free of grease, moisture or foreign matter before application of epoxy resin.

7–23. APPLICATION OF EPOXY RESIN. The epoxy resin (H. B. Fuller Co., Resiweld Coating No. 200) consists of two liquids which must be mixed: an epoxy base compound and a hardener. Two parts of the base compound are mixed with one part of the hardener, by weight. The mixture is then thinned to desired viscosity with a thinner (H. B. Fuller Co., Sov-2). Pot life of the epoxy resin is from three to four hours after mixing and is greatest if kept at low temperatures. The coating is applied as follows:

a. After mixing and thinning, apply epoxy resin to cleaned areas. Use brush. Final, cured coating should be at least 0.001 inch thick.

b. If necessary, air dry for one and one-half hours at room temperature.

c. Cure in oven for two hours at 150°F (65°C).

7–24. WIRING HARNESS REPAIR.

7–25. Use a minimum of two turns of "Temp-R-Tape" (Connecticut Hard Rubber Co.) to repair all burned or split wire insulation. Replace taped area before inserting wire back into harness. Where wire is broken, disconnect at each end and relace new wire into harness. Perform a simple continuity check after replacing wire.

SECTION VIII
TESTING OF SUBASSEMBLIES

8-1. GENERAL.

8-2. SCOPE. This section describes the testing of subassemblies in the PPC. The two main areas of testable subassemblies included in this section are as follows:

Subassembly	*Test Station*	*Test Station Figure No.*
Digital Cards	Test Equipment, Depot-Station 5	Figure 2-1
Analog Cards	Test Equipment, Depot-Station 14	Figure 2-3

Testing is performed as a means of troubleshooting these units. After repair however, the units should be checked in accordance with the test procedure to insure a minimum performance standard. The Test Procedure tables contained herein specify a step by step performance check. These steps are related to the Trouble Analysis Tables of Section III. When specified normal indications fail on any step in the tables below, refer to the like numbered steps in the applicable Trouble Analysis Table.

8-3. EYELET IDENTIFICATION. Eyelets on card subassemblies constitute minor test points. Because of their large number and high concentration they are indicated on various diagrams by a circled number only. They are referenced in the tables herein with the letter prefix "E" to distinguish them from numeric values associated with testing or trouble analysis. When a card subassembly is being tested, it will be necessary to refer to the component location diagrams of Section III for proper identification of eyelets. For function and relationship of the input or output eyelets, refer to the logic diagrams (Section III) or to the schematic diagrams in this section.

8-4. ALIGNMENTS.

8-5. Alignment procedures are peculiar to Analog card subassemblies. These alignments are noted in the test procedure tables.

8-6. DEFINITIONS OF TERMS AND ABBREVIATIONS.

8-7. Schematic diagrams in this section include many functions which are either abbreviated or peculiar to Radar Set AN/APN-105. Definitions of abbreviations and terms are found in Section I

8-8. PRELIMINARY TEST SET-UP FOR DIGITAL CARD SUBASSEMBLIES.

8-9. GENERAL. Two tests must be performed for each digital card subassembly. They are included in this section as the Nominal and Marginal tests.

8-10. Using Test Equipment, Depot-Station 5 (figure 2-1), the following procedures are to be followed prior to testing any digital card subassembly. These are general procedures, and will be applicable unless otherwise noted in the operational procedures of an individual card subassembly.

a. On the Power Control Panel turn RESISTANCE switch to "DC ON". Turn on Power Switch.

b. Turn on all power supplies. Place Marginal Voltage switches (9, figure 2-1) as directed in the operational procedure of the particular card subassembly.

CAUTION

On the Power Control Panel, do not press the DC ON button until the digital card and any applicable test jig are connected.

c. On the Computer Test Counter (CTC), place the OUTPUT switch to "NORMAL".

d. Place the 5 KC and 10 KC Pulse Amp switches to "C" (negative).

e. Place TIME BASE (SEC) switch to "1" unless otherwise noted in the individual test procedure table.

f. Unless otherwise noted in the individual test procedure table, place PULSE RATE switch to "10K".

g. Unless otherwise noted in the individual test procedure table, place MODE switch to "BURST".

h. Place PROBE INPUT switch to "NORMAL".

i. Place MANUAL-AUTO switch to "AUTO".

j. Place the pertinent card Program Patchboard (7, figure 2-2) in position on Program Panel (12, figure 2-1).

k. Follow further instructions specified in the operational procedure for a particular card subassembly.

8-11. USE OF TEST PROCEDURE TABLE, DIGITAL CARD SUBASSEMBLIES.

8-12. The Test Procedure Table is used to set up certain test conditions that simulate actual operation of the card subassembly in the PPC. The columns contained in this table are defined as follows:

a. Step: Numbered consecutively.

b. Switch Positions on Program Test Panel: Switch positions on Test Procedure Tables are coded A, B, C, D, E, F, H, J, K and L. The switches are positioned to program the inputs and outputs of the subassembly being tested.

c. CTC Switch Positions: Consists of the MODE and PULSE RATE switch positions. The MODE switch denotes whether the CTC emits a continuous

pulse train (frequency position) or a burst of pulses (BURST). The Pulse Rate switch controls the pulse rate output of the C.T.C.

d. CTC Pulse Input: Actual frequency applied to the specified eyelet number on the card subassembly. Refer to logic diagrams in Section III.

e. DC Potentials: Indicates the gating or polarity voltage applied to applicable eyelets. See logic diagrams in Section III.

f. Normal Indications: Indicates the applicable eyelet from which the count, voltage, or current reading is obtained. In some cases, this column also contains various meter readings or supplementary instructions pertinent to obtaining normal indications.

8-13. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2101.

a. The C.T.C. is not utilized in the testing of this card.

b. Connect Plugs P1334 and P1333 of card 2101 to J2 and J3, respectively, of the test station.

c. Ground the card frame and connector shields with the ground wire attached to the test station.

d. Insert Patchboard 2101 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

e. On the Power Supply Panel, place all Marginal Voltage switches to "NOM".

f. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

g. Perform the test procedure specified in Table 8-1.

8-14. MARGINAL VOLTAGE TEST.

8-15. Digital card subassembly 2101 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI"
+34v	"LO"
+22v	"HI"

With the Marginal Voltage Switches in the above positions, repeat the test procedure in Table 8-1. All switches that are not utilized will be left in "NOM".

8-16. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2102.

a. Set the C.T.C. as outlined in paragraph 8-10 except for the following: Place the 5KC and 10KC pulse amp switches to "A", obtaining a 5v, 2usec pulse.

b. Connect Plug P1332 of card 2102 to J3 of the test station.

c. Ground the card frame and connector shield with the ground wire attached to the test station.

d. Using the oscilloscope, check the output wave shape of the C.T.C. (figure 8-1A) for proper dimensions.

e. Insert Patchboard 2102 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-2.

8-17. MARGINAL VOLTAGE TEST.

8-18. Digital card subassembly 2102 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supply	*Marginal Voltage Switch Positions*
+18v	"HI and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat steps 3, 8, 10, 15, and 17 as specified in Table 8-2. All switches that are not utilized will be left in "NOM".

8-19. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2103.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1331 of card subassembly 2103 to J1 of the test station.

c. Connect TJ 100-56 (2, figure 2-2) to J3 of the test station.

d. Ground the card frame and connector shield with the ground wire attached to the test station.

e. Using the oscilloscope, check the output wave-shape of the C.T.C. (figure 8-1B) for proper dimensions.

f. Insert Patchboard 2103 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

g. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

h. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

i. Perform the test procedure specified in Table 8-3.

8-20. MARGINAL VOLTAGE TEST.

8-21. Digital card subassembly 2103 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supply	*Marginal Voltage Switch Positions*
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat steps 1, 2, 7 through 12, 19 through 22, 29 through 31, 36 through 51 as specified in Table 8-3. All switches that are not utilized will be left in "NOM".

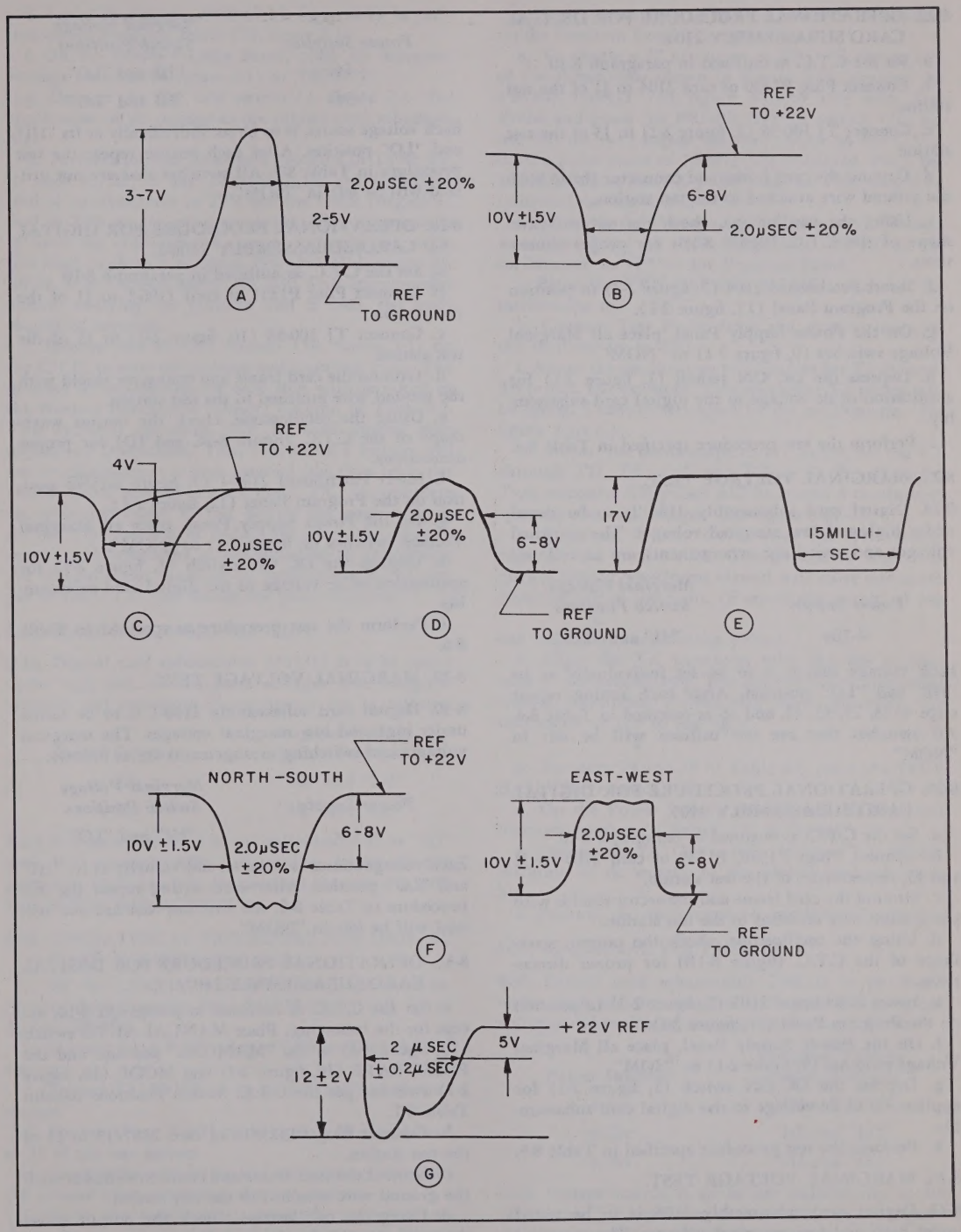


Figure 8-1. Test Waveforms, Digital Card Subassemblies

8-22. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2104.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1330 of card 2104 to J1 of the test station.

c. Connect TJ 100-56 (2, figure 2-2) to J3 of the test station.

d. Ground the card frame and connector shield with the ground wire attached to the test station.

e. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B) for proper dimensions.

f. Insert Patchboard 2104 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

g. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

h. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

i. Perform the test procedure specified in Table 8-4.

8-23. MARGINAL VOLTAGE TEST.

8-24. Digital card subassembly 2104 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supply	*Marginal Voltage Switch Positions*
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat steps 4, 13, 19, 33, 42, and 46 as specified in Table 8-4. All switches that are not utilized will be left in "NOM".

8-25. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2105.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plugs P1348, P1349 of card 2105 to J1 and J3, respectively, of the test station.

c. Ground the card frame and connector shields with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B) for proper dimensions.

e. Insert Patchboard 2105 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-5.

8-26. MARGINAL VOLTAGE TEST.

8-27. Digital card subassembly 2105 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI and "LO"
+34v	"HI and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-5. All switches that are not utilized will be left in "NOM".

8-28. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2106-1.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1351 of card 2106-1 to J1 of the test station.

c. Connect TJ 100-68 (10, figure 2-2) to J3 of the test station.

d. Ground the card frame and connector shield with the ground wire attached to the test station.

e. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1C and 1D) for proper dimensions.

f. Insert Patchboard 2106-1 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

g. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

h. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

i. Perform the test procedure as specified in Table 8-6.

8-29. MARGINAL VOLTAGE TEST.

8-30. Digital card subassembly 2106-1 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supply	*Marginal Voltage Switch Positions*
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-6. All switches that are not utilized will be left in "NOM".

8-31. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2107/17.

a. Set the C.T.C. as outlined in paragraph 8-10, except for the following: Place MANUAL-AUTO switch (10, figure 2-1) in the "MANUAL" position and the PULSE RATE (10, figure 2-1) and MODE (10, figure 2-1) switches per the C.T.C. Switch Positions column Table 8-7.

b. Connect Plug P1325/16 of card 2107/17 to J3 of the test station.

c. Ground the card frame and connector shields with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B) for proper dimensions.

e. Insert Patchboard 2107/17 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-7. In steps 21, 22, 23 and 24 connect the red (positive) lead of an ohmmeter to TP2 and the black (negative) lead to TP5 on the program panel. The ohmmeter is to have the conventional current entering the negative lead, such as a Simpson No. 260 Multimeter exhibits. If a Triplett Meter No. 630 with conventional current entering the positive lead is used, the leads should be reversed.

i. Depress the START button (10, figure 2-1) on the C.T.C. to start the pulsing and counting cycle. The number of depressions for each step will be noted in the Normal Indications (Other) Column of Table 8-7. This cycle of operation will be used during each step of the Operational Test. The START button will not be depressed at a time interval less than once per second. This method allows the C.T.C. to complete its cycle and come to rest before the next cycle is started. One method of indicating when the cycle is started and completed is accomplished by connecting the vertical input probe of an oscilloscope to the output of the C.T.C. and noting the pulse duration.

8-32. MARGINAL VOLTAGE TEST.

8-33. Digital card subassembly 2107/17 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure in Table 8-7. All switches that are not utilized will be left in "NOM".

8-34. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2108.

a. Set the C.T.C. as outlined in paragraph 8-10, except for the following: Place MODE switch (10, figure 2-1) to "FREQ".

b. Connect Plug P1329 of card 2108 to J3 of the test station.

c Connect TJ 100-128 (4, figure 2-2) to J1 of the test station.

d. Connect Plug P1334 of an operating 2113-1 card to J2 of the test station.

e. Ground the card frame and connector shield with the ground wire attached to the test station.

f. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1E) for proper dimensions.

g. Insert Patchboard 2108 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

h. To obtain a 27 kc output at TP3 (12, figure 2-1) of the dimensions shown in Figure 8-1E, connect the PROBE INPUT (10, figure 2-1) to TP3 with Test Probe and place the PROBE INPUT switch (10, figure 2-1) to "—". Adjust the OSC. ADJ. on the C.T.C. until a pulse count of 7000 ± 5 is displayed. Place the TIME BASE to ".1". A pulse count of 2700 should be indicated on the C.T.C.

i. Adjust the oscilloscope for 5v/cm vertical. Connect a test lead from the EXT. TRIGGER INPUT on the oscilloscope to TP5 on the Program Panel.

j. Place the TRIGGERING MODE switch on the oscilloscope to "—EXT".

k. Connect Test Probe from the vertical input of the oscilloscope to TP2.

l. Adjust the oscilloscope to 37 μs/cm for T1 through T6 pulses. For example: Two successive T4 pulses will be spaced 6 centimeters apart by the oscilloscope. (See figure 8-2A-F.)

m. Adjust the oscilloscope to 111 μs/cm for the TA through TD, TA + C and TB + D. For example: Two successive TB pulses will be spaced 4 centimeters apart by the oscilloscope. (See figure 8-2G-L.)

n. Align the T1 waveform with the left vertical edge of the oscilloscope. The successive high frequency timing waveforms viewed will move one centimeter or $\frac{1/P}{6}$ to the right. (P equals the period of any one high frequency timing pulse.)

o. Align the TA waveform with the left vertical edge of the oscilloscope. The successive low frequency timing waveforms viewed will move generally one centimeter or $\frac{1/P}{4}$ to the right.

p. For steps 29 and 45 of Table 8-8, place the TIME BASE (SEC) switch to ".1".

q. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

r. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

s. Perform the test procedure specified in Table 8-8.

8-35. MARGINAL VOLTAGE TEST.

8-36. Digital card subassembly 2108 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI and "LO"
+22v	"HI and "LO"
+18v	"HI and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure in Table 8-8. All switches that are not utilized will be left in "NOM".

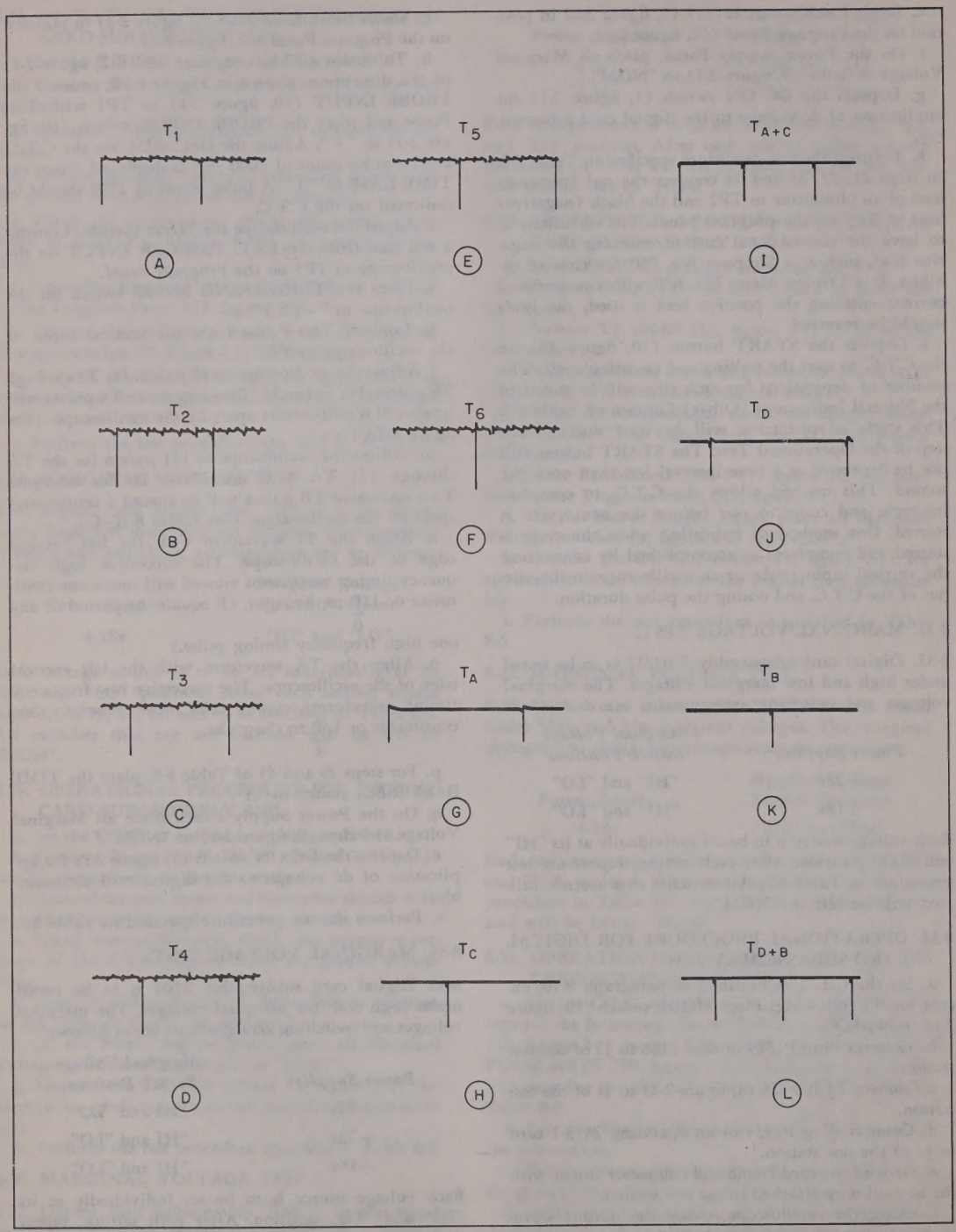


Figure 8-2. Card Subassembly 2108, Timing Pulses

8-37. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2109.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1328 of card 2109 to J1 of the test station.

c. Ground the card frame and connector shield with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B and 1D) for proper dimensions.

e. Insert Patchboard 2109A (7, figure 2-2) in position on the Program Panel for steps 1 through 7 of Table 8-9 and Patchboard 2109B for steps 8 through 156 (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-9.

8-38. MARGINAL VOLTAGE TEST.

8-39. Digital card subassembly 2109 is to be tested under high and low marginal voltages. The marginal voltage and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure in Table 8-9. All switches that are not utilized will be left in "NOM".

8-40. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2110/18.

a. Set the C.T.C. as outlined in paragraph 8-10, except for the following: The Pulse Rate switch will be set per the C.T.C. Switch Positions column in Table 8-10.

b. Connect Plug P1326/22 of card 2110/18 to J1 of the test station.

c. Connect TJ 100-114 (9, figure 2-2) to J3 of the test station.

d. Ground the card frame and connector shield with the ground wire attached to the test station.

e. Connect Patchboard 2110/18A (7, figure 2-2) for steps 1 through 32 of Table 8-10 and Patchboard 2110/18B for steps 33 through 36 (12, figure 2-1).

f. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B) for proper dimensions.

g. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

h. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

i. Perform the test procedure as specified in Table 8-10. On steps 13 and 14 of Table 8-10, M1 and M3 will oscillate between 5 and 15 volts.

8-41. MARGINAL VOLTAGE TEST.

8-42. Digital card subassembly 2110/18 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-10. All switches that are not utilized will be left in "NOM".

8-43. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2111.

a. Set the C.T.C. as outlined in paragraph 8-10, except for the following: The TIME BASE (SEC) switch (10, figure 2-1) is to be set at 10.

b. Connect Plug P1327 of card 2111 to J3 of the test station.

c. Ground the card frame and connector shield with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshapes of the C.T.C. (figure 8-1F) for proper dimensions.

e. Insert Patchboard 2111 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-11.

8-44. MARGINAL VOLTAGE TEST.

8-45. Digital card subassembly 2111 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+18v	"HI" and "LO"
+22v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-11. All switches that are not utilized will be left in "NOM".

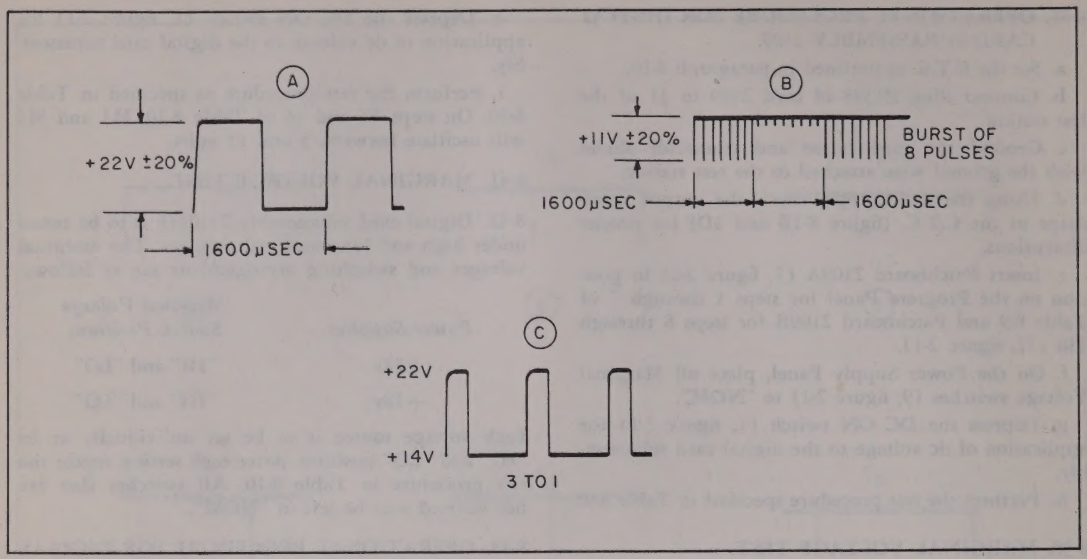


Figure 8-3. Card Subassemblies 2115/2120 and 2112/2119, Test Waveforms

8-46. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2112/19.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1346/47 of card 2112/19 to TJ 100-1145 (3, figure 2-2) which in turn is connected to J1 of the test station.

c. Ground the card frame and connector shield with the ground wire attached to the test station.

d. Using the oscillscope, check the output waveshape of the C.T.C. (figure 8-1C) for proper dimensions.

e. Insert Patchboard 2112/19 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-12. In steps 30 and 31 the indicator lamps will indicate a backward (left to right) until a null is reached and then count forward (right to left) indefinitely. In steps 19, 20, 21, 22, and 23 the F.B.C. cannot count if it is at a null (all six lamps lit). These steps must be performed with the F.B.C. out of null. To bring the F.B.C. out of null, push the reset button on the test jig.

8-47. MARGINAL VOLTAGE TEST.

8-48. Digital card subassembly 2112/19 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+18v	"HI" and "LO"
+22v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-12. All switches that are not utilied will be left in "NOM".

8-49. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2113-1.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1345 of card 2113-1 to J1 of the test station. Connect Plug P1344 of card 2113-1 to TJ 100-105 (12, figure 2-2) and connect to J3 of the test station.

c. Ground the card frame and connector shields with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B) for proper dimensions.

e. Insert Patchboard 2113-1 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-13.

8-50. MARGINAL VOLTAGE TEST.

8-51. Digital card subassembly 2113-1 is to be tested under high and low marginal voltages. The marginal voltage and switching arrangements are as follows:

Power Suppies	*Marginal Voltage Switch Positions*
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure in Table 8-13. All switches that are not utilized will be left in "NOM".

8-52. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2114-1.

a. Set the C.T.C. as outlined in paragraph 8-10 except for the following: The TIME BASE (sec) switch (10, figure 2-1) is to be set at "10" for step 1 Table 8-14. Reset this switch to "1" to complete the test as specified in Table 8-14.

b. Connect Plug P1342 of card 2114-1 to J1 of the test station.

c. Ground the card frame and connector shield with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshape of the C.T.C. (figure 8-1B) for proper dimensions.

e. Insert Patchboard 2114-1 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Perform the test procedure specified in Table 8-14.

8-53. MARGINAL VOLTAGE TEST.

8-54. Digital card subassembly 2114-1 is to be tested under high and low marginal voltages. The marginal voltage and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure in Table 8-13. All switches that are not utilized will be left in "NOM".

8-55. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2115/20.

a. Set the C.T.C. as outlined in paragraph 8-10 except for the following: The PULSE RATE switch (10, figure 2-1) will be set per the C.T.C. Switch Positions column in Table 8-15.

b. Connect Plug P1341/50 of card 2115/20 to TJ 100-109 (6, figure 2-2) and connect to J3 of the test station.

c. Connect TJ 100-29, (8, figure 2-2) and TJ 100-79, (5, figure 2-2) to J1 and J2, respectively, of the test station.

d. Ground the card frame and connector shield with the ground wire attached to the test station.

e. Using the oscilloscope, check the output waveshape (figure 8-1B) for proper dimensions.

f. Insert Patchboard 2115/20 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

g. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

h. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

i. Proceed with the test procedure as specified in Table 8-15.

8-56. MARGINAL VOLTAGE TEST.

8-57. Digital card subassembly 2115/20 is to be tested under high and low marginal voltages. The marginal voltage and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure in Table 8-15. All switches that are not utilized will be left in "NOM".

8-58. OPERATIONAL PROCEDURE FOR DIGITAL CARD SUBASSEMBLY 2116.

a. The C.T.C. is not utilized in the testing of this card.

b. Connect Plugs P1323 and P1324 of card 2116 to J1 and J3, respectively, of the test station.

c. Ground the card frame and connector shields with the ground wire attached to the test station.

d. Insert Patchboard 2116 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

e. On the Power Supply Panel place all Marginal Voltage switches (9, figure 2-1) to "NOM".

f. Depress the DC ON switch (1, figure 2-1) for application of dc voltages to the digital card subassembly.

g. Perform the test procedure specified in Table 8-16.

8-59. MARGINAL VOLTAGE TEST.

8-60. Digital card subassembly 2116 is to be tested under high and low marginal voltages. The marginal

voltage and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting, repeat the test procedure specified in Table 8-16. All switches not utilized will be left in "NOM".

8-61. DIGITAL-ANALOG CARD SUBASSEMBLY 2129.

8-62. The 2129 card subassembly contains a portion of the digital and analog circuits. The test for the digital portion is outlined below. For the preliminary operational and marginal test of the analog portion, refer to paragraphs 8-97 through 8-99.

8-63. OPERATIONAL PROCEDURE FOR DIGITAL PORTION CARD SUBASSEMBLY 2129.

a. Set the C.T.C. as outlined in paragraph 8-10.

b. Connect Plug P1338 of card 2129 to J3 of the test station.

c. Ground the card frame and connector shield with the ground wire attached to the test station.

d. Using the oscilloscope, check the output waveshape (figure 8-1B) for proper dimensions.

e. Insert Patchboard 2129 (7, figure 2-2) in position on the Program Panel (12, figure 2-1).

f. On the Power Supply Panel, place all Marginal Voltage switches (9, figure 2-1) to "NOM".

g. Depress the DC ON switch (1, figure 2-1) for application of dc voltage to the digital card subassembly.

h. Proceed with the test procedure as specified in Table 8-17.

8-64. MARGINAL VOLTAGE TEST.

8-65. Digital card subassembly 2129 is to be tested under high and low marginal voltages. The marginal voltage and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+18v	"HI" and "LO"
+22v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-17. All switches not utilized will be left in "NOM".

8-66. PRELIMINARY TEST SET-UP FOR ANALOG CARD SUBASSEMBLIES.

8-67. GENERAL. Two tests must be performed for each analog card subassembly. They are included in this section as the nominal and marginal test.

8-68. Using Test Equipment, Depot-Station 14, (figure 2-3), the following procedures are to be followed prior to testing any analog card subassembly. These are general procedures, and will be applicable unless otherwise noted in the operational procedure of an individual card subassembly.

a. On the power control panel (23, figure 2-3) turn 60 cycle ac switch to "ON".

CAUTION

On the Power Control Panel, do not turn on the DC ON switch, until the analog card is connected.

8-69. OPERATIONAL PROCEDURE FOR ANALOG CARD SUBASSEMBLY 2122-2.

a. Connect Plug P1340 of card subassembly 2122-2 to J1340 on the 2122/2123 panel of the test station.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Set the 2122/2123 switch (20, figure 2-3) to the "2122" position.

d. Turn the DC switch to "ON" (23, figure 2-3) for application of dc voltage to the analog card subassembly.

e. Connect the Vacuum Tube Volt-Meter (VTVM) leads to the METER OUTPUT connectors (18, figure 2-3) on the test station.

f. Set the METER FUNCTION switch (18, figure 2-3) on the "OUTPUT" position and rotate the AMPLIFIER SELECTOR switch (18, figure 2-3) through all its positions. Depress the LONG RANGE/SHORT RANGE switch when the AMPLIFIER SELECTOR switch is on the "COS CA SIN d" position.

g. The voltage reading on the VTVM for each individual position of the AMPLIFIER SELECTOR switch should not be greater than 0.010 volts.

h. Turn on the FIXED AC and the VAR AC switches (22, figure 2-3) on the AC power control panel.

i. Perform the test procedure specified in Table 8-18.

Note

To check null, as described in Table 8-18, vary the GAIN and PHASE VERNIERS (22, figure 2-3) alternately until the lowest voltage can be obtained on the VTVM. A null must be obtained before the limits of the verniers are reached.

Table 8-1. Test Procedure for Card Subassembly 2101 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
35	2	2	—	—	11	4	7	1	—	—	—	—	—	—	+22	E16, E32	—	—	M1 reads +34V at E24 M3 reads +34V at E27 Count A lights 4, 8, on Count B lights all off
36	2	2	—	—	12	4	8	1	—	—	—	—	—	—	+22	E28, E32	—	—	M1 reads +34V at E21 M3 = 0 Count A lights 8, 16, on Count B lights all off
37	2	2	—	—	10	4	9	1	—	—	—	—	—	—	+22	E25, E32 E57, E50	—	—	M1 reads 22V at E30 M3 reads +22V at E56 Count A lights 2 & 8 on Count B lights 2 & 8 on
38	1	1	—	—	1	5	1	2	—	—	—	—	—	—		none	—	—	M1 reads +22V at E10 M3 reads +22V at E7
39	1	1	—	—	1	5	1	3	—	—	—	—	—	—	+22	E8, E9	—	—	M1 reads +34V at E10 M3 reads +34V at E7
40	1	1	—	—	1	5	1	4	—	—	—	—	—	—	+18	E47, thru 150K resistance	—	—	M1 reads +22V at E46 M3 reads +34V at E45
41	1	1	—	—	1	5	1	5	—	—	—	—	—	—	+44	E47, thru 150K resistance	—	—	M1 reads +34V at E46 M3 reads +22V at E45
42	1	1	—	—	1	5	1	6	—	—	—	—	—	—	+18	E44, thru 150K resistance	—	—	M1 reads +22V at E42 M3 reads +34V at E40
43	1	1	—	—	1	5	1	7	—	—	—	—	—	—	+44	E44, thru 150K resistance	—	—	M1 reads +34V at E42 M3 reads +22V at E40
44	1	1	—	—	1	5	1	8	—	—	—	—	—	—	+18	E39, thru 150K resistance	—	—	M1 reads 22V at +E37 M3 reads +34V at E36
45	1	1	—	—	1	5	1	9	—	—	—	—	—	—	+44	E39, thru 150K resistance	—	—	M1 reads +34V at E37 M3 reads +32V at E36

Table 8-2. Test Procedure for Card Subassembly 2102

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
	See paragraph 8-16 before performing the following steps:																		
1	1	—	—	—	1	1	—	—	—	—	BURST	10K	10KC	none	+22	none	0		
2	1	—	—	—	2	1	—	—	—	—	BURST	10K	10KC	E11	+22	none	39	E14	
3	1	—	—	—	3	1	—	—	—	—	BURST	10K	10KC	E11	+22	none	0	E13	
4	1	—	—	—	3	2	—	—	—	—	BURST	10K	10KC	E11	+22	E15	1250	E13	
5	1	—	—	—	3	3	—	—	—	—	BURST	10K	10KC	E11	+22	E16	1093	E13	
6	1	—	—	—	3	4	—	—	—	—	BURST	10K	10KC	E11	+22	E10, E16	1132	E13	
7	1	—	—	—	3	5	—	—	—	—	BURST	10K	10KC	E11	+22	E15, E17	1328	E13	
8	1	—	—	—	3	6	—	—	—	—	BURST	10K	10KC	E11	+22	E10, E15, E16, E17	2460	E13	
9	1	—	—	—	4	1	—	—	—	—	BURST	10K	10KC	E6	+22	none	39	E9	
10	1	—	—	—	5	1	—	—	—	—	BURST	10K	10KC	E6	+22	none	0	E8	
11	1	—	—	—	5	2	—	—	—	—	BURST	10K	10KC	E6	+22	E15	1250	E8	
12	1	—	—	—	5	3	—	—	—	—	BURST	10K	10KC	E6	+22	E16	1093	E8	
13	1	—	—	—	5	4	—	—	—	—	BURST	10K	10KC	E6	+22	E10, E16	1132	E8	
14	1	—	—	—	5	5	—	—	—	—	BURST	10K	10KC	E6	+22	E15, E17	1328	E8	
15	1	—	—	—	5	6	—	—	—	—	BURST	10K	10KC	E6	+22	E10, E15, E16, E17	2460	E8	
16	1	—	—	—	6	1	—	—	—	—	BURST	10K	10KC	E2	+22	none	39	E5	
17	1	—	—	—	7	1	—	—	—	—	BURST	10K	10KC	E2	+22	none	429	E4	

Table 8-3. Test Procedure for Card Subassembly 2103

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
	See paragraph 8-19 before performing the following steps:																		
1	1	1	—	—	1	1	1	1	—	—	BURST	10K	5KC	E8	+22	none	0	E20	
2	1	1	—	—	2	2	2	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E2, E4, E6, E7, E11, E23	4687	E18	
3	1	1	—	—	2	2	3	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E7	2500	E18	
4	1	1	—	—	2	2	4	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E6	1250	E18	
5	1	1	—	—	2	2	5	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E4	625	E18	
6	1	1	—	—	2	2	6	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3	312	E18	
7	1	1	—	—	2	3	2	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E12, E24, E23, E25	0	E18	
8	1	1	—	—	3	2	2	1	—	—	BURST	10K	5KC 10KC	E8 E36	+22	E3, E4, E6, E7, E11, E23	4687	E18	
9	1	1	—	—	4	3	2	1	—	—	BURST	10K	5KC 10KC	E8 E36	+22	E3, E4, E6, E7, E12, E24, E25, E23	4687	E19	
10	1	1	—	—	4	2	2	1	—	—	BURST	10K	5KC 10KC	E8 E36	+22	E3, E4, E6, E7, E11, E23	0	E19	
11	1	1	—	—	5	3	2	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E24, E25, E23, E12	4687	E19	
12	2	1	—	—	6	2	2	1	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E11, E23	0	E9	

Table 8-3. Test Procedure for Card Subassembly 2103 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications	
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At Other
13	2	1	—	—	6	2	2	5	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E11, E23, E26	1172	E9
14	2	1	—	—	6	2	2	6	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E11, E23, E28, E14	586	E9
15	2	1	—	—	6	2	2	7	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E23, E11, E21, E29	293	E9
16	2	1	—	—	6	2	2	8	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E23, E11, E30, E16	146	E9
17	2	1	—	—	6	2	2	9	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E11, E23, E33, E32	73	E9
18	2	1	—	—	6	2	2	10	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E11, E23, E31, E34	36	E9
19	2	1	—	—	6	2	2	2	—	—	BURST	10K	5KC 10KC	E8 E22	+22	E3, E4, E6, E7, E11, E23, E26, E28, E29, E30, E32, E34	2307	E9
20	2	1	—	—	7	2	2	1	—	—	BURST	10K	5KC 10KC	E8 E36	+22	E3, E4, E6, E7, E11, E23, E26, E28, E29, E30, E32, E34	2307	E9
21	2	1	—	—	7	3	2	2	—	—	BURST	10K	5KC 10KC	E8 E36	+22	E3, E4, E6, E7, E23, E12, E24, E25, E26, E28, E29, E30, E32, E34	2307	E9
22	1	1	—	—	8	3	2	4	—	—	BURST	10K	5KC 10KC	E8 E10 E36	+22	E3, E4, E6, E7, E12, E23, E24, E25	0	E18

Table 8-4. Test Procedure for Card Subassembly 2104 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
14	1	—	—	—	12	3	5	5	—	—	BURST	10K	5KC 10KC	E7 E27	+22	E1, E6, E4, E39, E34, E29, E37, E35, E32, E30	1758	E21	
15	1	—	—	—	5	3	1	5	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E2, E6, E4, E39, E34	0	E20	
16	1	—	—	—	5	3	2	2	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E2, E6, E4, E29	117	E20	
17	1	—	—	—	5	3	2	3	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E2, E6, E4, E37, E38, E40	58	E20	
18	1	—	—	—	5	3	2	4	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E2, E6, E4, E35, E36, E42	29	E20	
19	1	—	—	—	5	3	3	4	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E2, E6, E4, E29, E40, E42, E35, E36	205	E20	
20	1	—	—	—	6	2	2	1	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E1, E6, E4	0	E21	
21	1	—	—	—	6	2	3	1	—	—	BURST	10K	5KC 10KC	E7 E13 E27	+22	E1, E6, E4, E29, E40, E42	205	E21	
22	1	—	—	—	7	5	2	2	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E29	0	E22	
23	1	—	—	—	7	4	2	2	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E15, E16, E6, E4, E29	2500	E22	
24	1	—	—	—	8	4	2	2	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E15, E16, E6, E4, E29	0	E24	

Table 8-4. Test Procedure for Card Subassembly 2104 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
25	1	—	—	—	8	5	2	2	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E29	2500	E24	
26	1	—	—	—	9	5	2	2	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E29	0	E23	
27	1	—	—	—	9	5	2	3	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E6, E4, E38, E40, E37, E26	625	E23	
28	1	—	—	—	9	5	2	4	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E35, E36, E42	312	E23	
29	1	—	—	—	9	5	2	5	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E39, E34	156	E23	
30	1	—	—	—	9	5	2	6	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E32, E33	78	E23	
31	1	—	—	—	9	5	2	7	—	—	BURST	10K	5KC 10KC	E10 E41	+22	E26, E6, E4, E30, E31	39	E23	
32	1	—	—	—	9	5	2	8	—	—	BURST	10K	5KC 10KC	E10 E27	+22	E26, E6, E4, E28	19	E23	
33	1	—	—	—	9	5	6	8	—	—	BURST	10K	5KC 10KC	E10 E27	+22	E26, E38, E36, E34, E33, E31, E28	1230	E23	
34	1	—	—	—	9	5	6	8	—	—	BURST	10K	5KC 10KC	E10 E27	+22	E16, E15, E38, E36, E34, E33, E31, E28	1230	E23	
35	1	—	—	—	10	6	6	8	—	—	BURST	10K	5KC 10KC	E10 E27	+22	E15, E38, E36, E34, E33, E31, E28	0	E20	
36	1	—	—	—	10	6	6	2	—	—	BURST	10K	5KC 10KC	E10 E27	+22	E15, E6, E29	625	E20	
37	1	—	—	—	10	6	6	3	—	—	BURST	10K	5KC 10KC	E10 E27	+22	E15, E4, E37, E3, E40	312	E20	

Table 8-6. Test Procedure for Card Subassembly 2106-1 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials			Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
3	—	—	1	2	11	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39	2500	E11	
4	—	—	1	1	11	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39	0	E11	
5	—	—	1	1	11	2	1	5	2	2	FREQ	10K	5KC	E41	Gnd	E4, E22, E23, E24, E25, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36	2490	E11	
6	—	—	1	2	11	2	1	5	2	2	FREQ	10K	5KC	E41	Gnd	E4, E22, E23, E24, E25, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36	2490	E11	
7	—	—	1	1	11	2	1	4	1	2	FREQ	10K	5KC	E41	Gnd	E28, E30, E32, E33, E34, E36	625	E11	
8	—	—	1	2	11	2	1	4	1	2	FREQ	10K	5KC	E41	Gnd	E28, E30, E32, E33, E34, E36	2422	E11	
9	—	—	1	2	2	2	1	2	1	1	FREQ	100	50PPS	E41	Gnd	E38			No count display by count "A" lights.
10	—	—	1	2	2	2	1	3	1	1	FREQ	100	50PPS	E41	Gnd	E39			A forward (left to right) count is displayed on count "A".
11	—	—	1	1	2	2	1	3	1	1	FREQ	100	50PPS	E41	Gnd	E39			No count display by count "A" lights.
12	—	—	1	2	2	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39	4	E5	
13	—	—	1	2	3	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39	9	E6	
14	—	—	1	2	4	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39	19	E7	
15	—	—	1	2	5	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39	39	E8	

Table 8-6. Test Procedure for Card Subassembly 2106-1 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials			Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets		CTC Count	At	Other
16	—	—	1	2	6	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39		78	E12	
17	—	—	1	2	7	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39		156	E14	
18	—	—	1	2	8	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39		312	E15	
19	—	—	1	2	9	2	1	3	1	1	FREQ	10K	5KC	E41	Gnd	E39		625	E9	
20	—	—	1	2	10	2	1	3	1	1	FREQ	1K	500PPS	E41	Gnd	E39		125	E10	
21	—	—	1	2	11	2	1	3	1	1	FREQ	1K	500PPS	E41	Gnd	E39		250	E11	
22	—	—	1	2	2	3	1	3	1	1	FREQ	100	100PPS	E13	Gnd	E39				A backward (right to left) count is displayed by count "A".
23	—	—	1	2	2	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		9	E5	
24	—	—	1	2	3	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		19	E6	
25	—	—	1	2	4	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		39	E7	
26	—	—	1	2	5	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		78	E8	
27	—	—	1	2	6	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		156	E12	
28	—	—	1	2	7	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		312	E14	
29	—	—	1	2	8	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		625	E15	
30	—	—	1	2	9	3	1	3	1	1	FREQ	10K	10KC	E13	Gnd	E39		125	E9	
31	—	—	1	2	10	3	1	3	1	1	FREQ	1K	1KC	E13	Gnd	E39		250	E10	
32	—	—	1	2	11	3	1	3	1	1	FREQ	1K	1KC	E13	Gnd	E39		500	E11	
33	—	—	1	1	2	4	1	2	1	1	FREQ	10K	10KC 5KC	E13 E41	Gnd	E39		4	E5	

Table 8-8. Test Procedure for Card Subassembly 2108

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
	See paragraph 8-34 before performing the following steps:																		
1	2	1	1	1	2	1	1	2	1	2	BURST	10K	—	—		none			
2	1	1	1	1	2	1	1	2	1	2	BURST	10K	27KC	E22		none	4500±46	E28	Waveform T_1 (figure 8-2A)
3	1	1	1	1	3	1	1	2	1	2	BURST	10K	27KC	E22		none	4500±46	E31	Waveform T_2 (figure 8-2B)
4	1	1	1	1	4	1	1	2	1	2	BURST	10K	27KC	E22		none	4500±46	E29	Waveform T_3 (figure 8-2C)
5	1	1	1	1	5	1	1	2	1	2	BURST	10K	27KC	E22		none	4500±46	E26	Waveform T_4 (figure 8-2D)
6	1	1	1	1	6	1	1	2	1	2	BURST	10K	27KC	E22		none	4500±46	E25	Waveform T_5 (figure 8-2E)
7	1	1	1	1	7	1	1	2	1	2	BURST	10K	27KC	E22		none	4500±46	E23	Waveform T_6 (figure 8-2F)
8	1	1	1	1	8	2	1	2	1	2	BURST	10K	4.5KC 27KC	E30 E22		none	1125±12	E2	Waveform T_A (figure 8-2G)
9	1	1	1	1	8	3	1	2	1	2	BURST	10K	4.5KC 27KC	E30 E22		none	1125±12	E3	Waveform T_C (figure 8-2H)
10	1	1	1	1	8	4	1	2	1	2	BURST	10K	4.5KC 27KC	E30 E22		none	2250±46	E4	Waveform T_{A+C} (figure 8-2I)
11	1	1	1	1	8	5	1	2	1	2	BURST	10K	4.5KC 27KC	E30 E22		none	1125±12	E7	Waveform T_D or T_B (figure 8-2J)
12	1	1	1	1	8	6	1	2	1	2	BURST	10K	4.5KC 27KC	E30 E22		none	1125±12	E5	Waveform T_B or T_D (figure 8-2K)
13	1	1	1	1	8	7	1	2	1	2	BURST	10K	4.5KC 27KC	E30 E22		none	2250±46	E6	Waveform T_{B+D} (figure 8-2L)
14	2	2	1	1	2	1	2	5	1	2	BURST	10K	10KC	E14	+22	E16, E17	0	E18	

Table 8-8. Test Procedure for Card Subassembly 2T08 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
15	2	2	2	1	2	1	2	5	1	2	BURST	10K	10KC	E4	+34	E16, E17	0	E18	
16	2	2	2	2	2	1	3	5	1	2	BURST	10K	10KC	E4	+22 +34	E17 E16	10,000	E18	
17	2	2	2	1	2	1	3	5	1	2	BURST	10K	10KC	E4	+22 +34	E16 E17	10,000	E18	
18	2	2	1	1	3	1	4	5	1	2	BURST	10K	5KC	E10	+22	E19, E21	5,000	E18	
19	2	2	2	1	3	1	4	5	1	2	BURST	10K	5KC	E10	+34	E19, E21	5,000	E18	
20	2	2	2	2	3	1	5	5	1	2	BURST	10K	5KC	E10	+22 +34	E21 E19	0	E18	
21	2	2	2	1	3	1	5	5	1	2	BURST	10K	5KC	E10	+22 +34	E19 E21	0	E18	
22	2	2	1	1	4	1	6	5	1	2	BURST	10K	5KC	E9	+22	E13, E17	5,000	E12	
23	2	2	2	1	4	1	6	5	1	2	BURST	10K	5KC	E9	+34	E13, E17	5,000	E12	
24	2	2	2	1	4	1	7	5	1	2	BURST	10K	5KC	E9	+22 +34	E13 E17	0	E12	
25	2	2	2	2	4	1	7	5	1	2	BURST	10K	5KC	E9	+22 +34	E17 E13	0	E12	
26	2	2	2	1	5	1	8	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22	E17, E16, E19, E21	5,000	E18	
27	2	2	1	1	5	1	9	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E17, E21 E16, E19	10,000	E18	
28	2	2	1	1	5	1	10	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E16, E17, E21 E19	0	E18	

Table 8-8. Test Procedure for Card Subassembly 2108 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
29	2	2	1	2	5	1	10	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E17, E19, E21 E16	1500	E18	Place TIME BASE (SEC) to .1
30	2	2	1	2	5	1	10	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E17, E19, E21 E16	15,000	E18	Place TIME BASE (SEC) to 1
31	2	2	1	1	6	1	2	5	1	2	BURST	10K	10KC	E14	+22	E16, E17	10,000	E15	
32	2	2	2	1	6	1	2	5	1	2	BURST	10K	10KC	E14	+34	E16, E17	10,000	E15	
33	2	2	2	2	6	1	3	5	1	2	BURST	10K	10KC	E14	+22 +34	E17 E16	0	E15	
34	2	2	2	1	6	1	3	5	1	2	BURST	10K	10KC	E14	+22 +34	E16 E17	0	E15	
35	2	2	1	1	7	1	4	5	1	2	BURST	10K	5KC	E10	+22	E19, E21	0	E15	
36	2	2	2	1	7	1	4	5	1	2	BURST	10K	5KC	E10	+34	E19, E21	0	E15	
37	2	2	2	2	7	1	5	5	1	2	BURST	10K	5KC	E10	+22 +34	E21 E19	5000	E15	
38	2	2	2	1	7	1	5	5	1	2	BURST	10K	5KC	E10	+22 +34	E19 E21	5000	E15	
39	2	2	1	1	8	1	6	5	1	2	BURST	10K	5KC	E9	+22	E13, E17	0	E11	
40	2	2	2	1	8	1	6	5	1	2	BURST	10K	5KC	E9	+34	E13, E17	0	E11	
41	2	2	2	1	8	1	7	5	1	2	BURST	10K	5KC	E9	+22 +34	E13 E17	5000	E11	
42	2	2	2	2	8	1	7	5	1	2	BURST	10K	5KC	E9	+22 +34	E17 E13	5000	E11	
43	2	2	1	1	9	1	8	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22	E16, E17, E19, E21	10,000	E15	

Table 8-8. Test Procedure for Card Subassembly 2108 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials			Normal Indications	
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
44	2	2	1	1	9	1	9	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E17, E21 E16, E19	5000	E15	
45	2	2	1	1	9	1	10	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E16, E17, E21 E19	1500	E15	Place TIME BASE (SEC) to .1
46	2	2	1	1	9	1	10	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E16, E17, E21 E19	15000	E15	Place TIME BASE (SEC) to 1
47	2	2	1	2	9	1	10	5	1	2	BURST	10K	5KC 10KC	E10 E14	+22 +34	E17, E19, E21 E16	0	E15	
48	1	2	1	2	10	1	1	2	1	3	BURST	10K	27KC	E22		none	36		
49	1	2	1	2	8	2	1	2	1	3	BURST	10K	27KC	E22		none	0		
50	1	2	1	2	8	2	1	2	1	3	BURST	10K	27KC 36PPS	E22 E30		none	9	E2	Waveform T_A (figure 8-2G)
51	1	2	1	2	8	3	1	2	1	4	BURST	10K	27KC 36PPS	E22 E30		none	9	E3	Waveform T_C (figure 8-2H)
52	1	2	1	2	8	4	1	2	1	4	BURST	10K	27KC 36PPS	E22 E30		none	18	E4	Waveform T_{A+C} (figure 8-2I)
53	1	2	1	2	8	5	1	2	1	4	BURST	10K	27KC 36PPS	E22		none	9	E5	Waveform T_D (figure 8-2J)
54	1	2	1	2	8	6	1	2	1	4	BURST	10K	27KC 36PPS	E22 E30		none	9	E7	Waveform T_B (figure 8-2K)
55	1	2	1	2	8	7	1	2	1	4	BURST	10K	27KC 36PPS	E22 E30		none	18	E6	Waveform T_{B+D} (figure 8-2L)

Table 8-9. Test Procedure for Card Subassembly 2109 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
22	—	—	—	—	3	6	1	1	4	1	BURST	10K	10KC	E42	+4 +18	E13 E40, E39, E26, E25, E22, E21, E16, E11	9	E37	
23	—	—	—	—	3	7	1	1	4	1	BURST	10K	10KC	E42	+4 +18	E11 E40, E39, E26, E25, E22, E21, E16, E13	4	E37	
24	—	—	—	—	3	8	1	1	4	1	BURST	10K	10KC	E42	+4 +18	E22, E21, E18, E16, E13, E11 E40, E39, E26, E25	305	E37	
25	—	—	—	—	1	1	1	6	1	1	BURST	10K	10KC 5KC	E42 E43		none	625	E24	
26	—	—	—	—	1	1	1	7	1	1	BURST	10K	10KC 5KC	E43 E42		none	625	E24	
27	—	—	—	—	4	2	2	2	5	2	BURST	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E5, E7 E2, E3, E6	1000	E12	
28	—	—	—	—	4	2	2	3	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E5, E7 E2, E3, E6	0	E34	
29	—	—	—	—	4	2	2	4	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E5, E7 E2, E3, E6	0	E30	
30	—	—	—	—	4	2	2	5	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E5, E7 E2, E3, E6	0	E14	

Table 8-9. Test Procedure for Card Subassembly 2109 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
31	—	—	—	—	4	2	3	5	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E2, E6 E3, E5, E7	0	E14	
32	—	—	—	—	4	2	3	4	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E2, E6 E3, E5, E7	0	E30	
33	—	—	—	—	4	2	3	3	5	2	BURST	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E2, E6 E3, E5, E7	1000	E34	
34	—	—	—	—	4	2	3	2	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E1, E2, E6 E3, E5, E7	0	E12	
35	—	—	—	—	4	2	4	2	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E3, E6, E7 E1, E2, E5	0	E12	
36	—	—	—	—	4	2	4	3	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E3, E6, E7 E1, E2, E5	0	E34	
37	—	—	—	—	4	2	4	4	5	2	BURST	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E3, E6, E7 E1, E2, E5	1000	E30	
38	—	—	—	—	4	2	4	5	5	2	CONT.	1K	1KC	E36	+4 +18 +34 Gnd	E20 E17 E3, E6, E7 E1, E2, E5	0	E14	

Table 8-10. Test Procedure for Card Subassembly 2110/18 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
25	1	1	2	1	1	2	1	3	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E6	2500	E35	
26	1	1	2	1	1	2	1	4	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E13	1250	E35	
27	1	1	2	1	1	2	1	5	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E15	625	E35	
28	1	1	2	1	1	2	1	6	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E17	313	E35	
29	1	1	2	1	1	2	1	7	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E19	156	E35	
30	1	1	2	1	1	2	1	8	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E21	78	E35	
31	1	1	2	1	1	2	1	9	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E23	39	E32	
32	1	1	2	1	1	2	1	10	1	1	BURST	10K	5KC 10KC	E27 E4	Gnd	E25	19	E32	
33	1	1	1	1	1	1	1	1	1	3	BURST	10K	5KC 10KC	E27 E26 E4	Gnd	E6, E7, E14, E15, E16, E17, E20, E21, E24, E25	3535	E32	Patchboard 2110/18-2 is to be used for the remaining steps
34	1	1	1	1	1	1	1	1	1	3	BURST	10K	5KC 10KC	E27 E26 E4	Gnd	E6, E7, E14, E15, E16, E17, E20, E21, E24, E25	3535	E35	
35	1	1	1	1	1	1	1	1	1	4	BURST	10K	5KC 10KC	E27 E4	Gnd	E6, E7, E14, E15, E16, E17, E20, E21, E24, E25	3535	E32	
36	1	1	1	1	1	1	1	1	1	5	BURST	10K	5KC 10KC	E27 E4	Gnd	E6, E7, E14, E15, E16, E17, E20, E21, E24, E25	3535	E35	

Table 8-11. Test Procedure for Card Subassembly 2111

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
	See paragraph 8-43 before performing the following steps:																		
1	1	—	—	—	1	—	—	—	—	—	BURST	10K	none	none		none	0		Set TIME BASE (SEC) switch to "10"
2	1	—	—	—	2	—	—	—	—	—	BURST	10K	5KC 10KC	E9 E10		none	13	E8	Set TIME BASE (SEC) switch to "10"
3	1	—	—	—	3	—	—	—	—	—	BURST	10K	5KC 10KC	E9 E10		none	0	E5	Set TIME BASE (SEC) switch to "10"
4	1	—	—	—	4	—	—	—	—	—	BURST	10K	5KC 10KC	E9 E10		none	0	E5	Set TIME BASE (SEC) switch to "10"
5	1	—	—	—	5	—	—	—	—	—	BURST	10K	5KC 10KC	E9 E10		none	13	E5	Set TIME BASE (SEC) switch to "10"
6	1	—	—	—	6	—	—	—	—	—	BURST	10K	5KC 10KC	E9 E10		none	0	E8	Set TIME BASE (SEC) switch to "10"
7	1	—	—	—	7	—	—	—	—	—	BURST	10K	none	none		none	0	E8	Set TIME BASE (SEC) switch to "10"
8	2	—	—	—	8	—	—	—	—	—	BURST	10K	10KC	E7		none	195	E2	Set TIME BASE (SEC) switch to "10"
9	2	—	—	—	9	—	—	—	—	—	BURST	10K	10KC	E7	+5 E4 +17 E1		0	E3	Set TIME BASE (SEC) switch to "10"
10	1	—	—	—	10	—	—	—	—	—	BURST	10K	none	none		none	0	E3	Set TIME BASE (SEC) switch to "10"
11	2	—	—	—	11	—	—	—	—	—	BURST	10K	10KC	E7	+17 E4 +5 E1		195	E3	Set TIME BASE (SEC) switch to "10"
12	2	—	—	—	12	—	—	—	—	—	BURST	10K	10KC	E7	+17 E4 +5 E1		0	E2	Set TIME BASE (SEC) switch to "10"

Table 8-13. Test Procedure for Card Subassembly 2113-1 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
4	1	1	—	1	1	3	1	1	2	1	BURST	10K	5KC	E40	+12 Gnd	E57, E55, E53, E51 E49, E47, E45, E43, E41	605	E1	
5	2	1	—	1	2	1	1	1	3	1	BURST	10K	5KC	E40	+12 Gnd	E56, E54, E52, E50, E48, E46, E44, E42 E58	5000	E2	
6	2	1	—	1	1	4	1	1	3	1	BURST	10K	5KC	E40	+12 Gnd	E58, E50, E48, E46 E56, E54, E52, E44, E42	4434	E2	
7	2	1	—	1	1	5	1	1	3	1	BURST	10K	5KC	E40	+12 Gnd	E58, E56, E54, E52, E44, E42 E50, E48, E46	546	E2	
8	1	2	—	1	1	1	1	1	4	1	BURST	10K	5KC	E10	+18	E27, E29, E65, E34, E38, E37	0	E8	
9	1	2	—	1	1	1	2	1	4	1	BURST	10K	5KC	E10	+4	E27, E29, E65, E34, E38, E37	1230	E8	
10	1	2	—	1	1	1	3	1	4	1	BURST	10K	5KC	E10	+18 +4	E34, E38, E37 E27, E29, E65	1094	E8	
11	1	2	—	1	1	1	4	1	4	1	BURST	10K	5KC	E10	+18 +4	E27, E29, E65 E34, E38, E37	136	E8	
12	1	2	—	1	1	1	4	1	10	1	BURST	10K	5KC	E10	+18 +4	E27, E29, E65 E34, E38, E37	39	E30	
13	1	2	—	1	1	1	1	2	5	1	BURST	10K	5KC	E10	+18	E28, E31, E32, E35, E33, E39	0	E9	
14	1	2	—	1	1	1	2	2	5	1	BURST	10K	5KC	E10	+4	E28, E31, E32, E35, E33, E39	1230	E9	
15	1	2	—	1	1	1	3	2	5	1	BURST	10K	5KC	E10	+18 +4	E35, E39, E33 E28, E31, E32	1094	E9	

Table 8-13. Test Procedure for Card Subassembly 2113-1 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials			Normal Indications		
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
16	1	2	—	1	1	1	4	2	5	1	BURST	10K	5KC	E10	+18 +4	E28, E31, E32 E35, E39, E33	136	E9	
17	1	1	—	1	1	1	4	2	6	1	BURST	10K	5KC	E15		none	5000	E11	
18	1	1	—	1	2	1	4	2	6	1	BURST	10K	5KC	E15		none	5000	E60	
19	1	1	—	1	3	1	4	2	7	1	BURST	10K	5KC	E12		none	5000	E13	
20	1	1	—	1	4	1	4	2	7	1	BURST	10K	5KC	E12		none	5000	E61	
21	1	1	—	1	5	1	4	2	8	1	BURST	10K	5KC	E19		none	5000	E17	
22	1	1	—	1	6	1	4	2	8	1	BURST	10K	5KC	E19		none	5000	E62	
23	1	1	—	1	7	1	4	2	9	1	BURST	10K	5KC	E20		none	5000	E16	
24	1	1	—	1	8	1	4	2	9	1	BURST	10K	5KC	E20		none	5000	E63	
25	1	1	—	2	8	1	4	2	9	1	—	—	—	—	+28	E24, E26	—	—	M1 reads +28v M3 reads +28v
26	1	1	2	2	8	1	4	2	9	1	—	—	—	—	+28	E24, E25, E26	—	—	M1 reads 0 M3 reads 0
27	1	1	2	2	9	1	4	2	9	1	BURST	10K	5KC	E20	+28	E25	5000	E18	
28	1	1	2	2	10	1	4	2	8	1	BURST	10K	5KC	E19	+28	E25	5000	E21	
29	1	1	2	2	11	1	4	2	7	1	BURST	10K	5KC	E12	+28	E25	5000	E6	
30	1	1	2	2	12	1	4	2	6	1	BURST	10K	5KC	E15	+28	E25	5000	E14	
31	1	1	1	2	12	1	4	2	6	1	—	—	—	—	+28	E22	—	—	M1 reads +28v M3 reads +28v
32	1	1	1	2	5	1	4	2	8	1	BURST	10K	5KC	E19		none	5000	E17	
33	1	1	1	2	1	1	4	2	6	1	BURST	10K	5KC	E15		none	5000	E11	

Table 8-15. Test Procedure for Card Subassemblies 2115/20 (Cont.)

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials			Normal Indications
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At	Other
17	2	2	1	1	2	3	1	4	1	—	BURST	100	100PPS	E2		none			M1 reads 0v at E24
18	2	2	1	1	3	3	1	4	1	—	BURST	100	100PPS	E6		none			M1 reads +18v ±0.5v at E24
19	2	2	1	1	4	3	1	4	1	—	BURST	100	100PPS	E2		none			M1 reads 0v at E 24
20	2	1	1	1	4	3	1	4	1	—	BURST	100	100PPS	E2		none			M1 reads +22v ±1v at E3 Count A counts forward, left to right Count B counts backward, right to left
21	2	1	1	1	3	3	1	4	1	—	BURST	100	100PPS	E6		none			M1 reads +44v ±1v at E3
22	2	1	1	1	2	3	1	4	1	—	BURST	100	100PPS	E2		none			M1 reads +22v ±1v at E3
23	2	1	1	1	2	4	1	4	1	—	BURST	1K	1KC	E1		none	0	E4	
24	1	1	1	1	2	4	1	4	1	—	BURST	1K	1KC	E1		none	125	E3	
25	1	1	1	1	2	4	1	4	1	—	BURST	1K	1KC	E1		none	125	E3	Check for proper waveform at TP5 on the test station (figure 8-3C)
26	1	1	2	1	2	6	1	4	1	—	BURST	10K	5KC			none	0	E4	
27	1	1	2	1	2	5	1	4	1	—	BURST	10K	5KC 10KC	E2 E27		none	0	E4	
28	1	1	2	1	2	6	1	4	1	—	BURST	10K	5KC	E2		none	625	E4	

Table 8-16. Test Procedure for Card Subassembly 2116

Step	Program Test Panel Switch Positions										CTC Switch Positions		CTC Pulse Input		D-C Potentials		Normal Indications	
	A	B	C	D	E	F	H	J	K	L	Mode	Pulse Rate	Freq.	At	V	At Eyelets	CTC Count	At
	See paragraph 8-58 before performing the following steps:																	
1	0	0	0	0	1	1	1	—	—	—	—	—	—	—		All Open	"COUNT A" 1 2 4 8 16 32 64 128 256 ON ON ON ON ON ON ON ON ON	
2	0	1	0	0	2	2	1	—	—	—	—	—	—	—	Gnd	E39, E10, E26, E25, E12, E17, E41	"COUNT A" 1 2 4 8 16 32 64 128 256 OFF ON ON ON ON ON ON ON ON	
3	1	1	0	0	2	2	1	—	—	—	—	—	—	—	Gnd	E40, E39, E10, E26, E25, E12, E17, E41	"COUNT A" 1 2 4 8 16 32 64 128 256 ON OFF OFF OFF OFF OFF OFF OFF OFF	
4	0	0	0	0	3	3	1	—	—	—	—	—	—	—	Gnd	E8, E7, E4, E3, E14, E15, E42	"COUNT A" 1 2 4 8 16 32 64 128 256 ON ON ON ON ON OFF ON OFF ON	
5	1	0	0	0	3	3	1	—	—	—	—	—	—	—	Gnd	E40, E8, E7, E4, E3, E14, E15, E42	"COUNT A" 1 2 4 8 16 32 64 128 256 ON OFF OFF OFF OFF ON OFF ON OFF	
6	0	1	0	1	5	5	1	—	—	—	—	—	—	—	Gnd	E39, E27, E59, E60, E36, E23, E18, E44, E48	"COUNT B" OFF ON ON ON ON ON ON ON ON	
7	0	1	1	1	5	5	1	—	—	—	—	—	—	—	Gnd	E45, E48, E39, E27, E59, E60, E36, E23, E18, E44	"COUNT B" 1 2 4 8 16 32 64 128 256 ON OFF OFF OFF OFF OFF OFF OFF OFF	
8	0	0	0	0	6	6	1	—	—	—	—	—	—	—	Gnd	E29, E30, E33, E34, E21, E20 E61	"COUNT B" 1 2 4 8 16 32 64 128 256 ON ON ON ON ON OFF ON OFF ON	
9	0	0	1	0	6	6	1	—	—	—	—	—	—	—	Gnd	E45, E29, E30 E33, E34, E21, E20, E61	"COUNT B" 1 2 4 8 16 32 64 128 256 ON OFF OFF OFF OFF ON OFF ON OFF	

8-70. USE OF TEST PROCEDURE TABLE 8-18.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-18 for analog card subassembly 2122-2 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

AMPLIFIER SELECTOR switch determines the amplifier to be tested.

METER FUNCTION switch controls the electrical position of the VTVM in the "OUTPUT" and "NULL" positions.

RATIO TRANS. SETTING switch controls the voltage input.

LONG RANGE/SHORT RANGE switch energizes the long range/short range relays on the 2122-2 card.

GAIN VERNIER determines the gain.

PHASE VERNIER determines the phase.

c. Procedures and Normal Indications: Indicate the individual procedure to be followed for each step, and the applicable eyelet (Logic diagrams Section III) from which the voltage or current reading is obtained.

8-71. MARGINAL VOLTAGE TEST.

8-72. Analog card subassembly 2122-2 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
−44v	"HI" and "LO"
+44v	"HI" and "LO"
−22v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the 9 volt test procedure in Table 8-18. All power supply switches that are not utilized will be left in "NOM".

Table 8-18. Test Procedure for Card Subassembly 2122-2

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	AMPLIFIER SELECTOR	METER FUNCTION	RATIO TRANS SETTING	LONG RANGE/ SHORT RANGE	GAIN VERNIER	PHASE VERNIER	
	See Paragraph 8-66 before performing the following steps:						
1	COS LAT dt COS LON	OUTPUT	TABLE TO ACCOMPANY TEST STATION	———	5	5	Adjust the ac variac to 2 volts on the VTVM
2	COS LAT dt COS LON	NULL		———	As adjusted for null	As adjusted for null	Adjust resistors R4555 and R4553 on card 2122-2 for a null on the VTVM. Vary the phase and gain verniers to check for null. Gain to equal 1.200 ±0.005. Phase to equal 6.0°
3	COS LAT dt COS LON	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
4	COS LAT dt COS LON	NULL		———	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. (R4555 R4553 should not be adjusted) Gain and Phase to be the same as step 2
5	COS LAT dt COS LON	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts output. The waveshape pattern on the oscilloscope should be sinusoidal
6	SIN LAT dt COS LON	OUTPUT		———	5	5	Adjust the ac variac for 2 volts on the TVM
7	SIN LAT dt COS LON	NULL		———	As adjusted for null	As adjusted for null	Adjust resistors R4560 and R4569 on card 2122-2 for a null on the VTVM. Vary the phase and gain verniers to check null. Gain to equal 0.620 ±0.005. Phase to equal 6.78° ±0.3°
8	SIN LAT dt COS LON	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for an output of 9 volts
9	SIN LAT dt COS LON	NULL		———	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. (R4560, R4569 should not be adjusted) Gain and Phase to be the same as step 7
10	SIN LAT dt COS LON	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts. The waveshape pattern on the oscilloscope should be an undistorted sinusoidal

Table 8-18. Test Procedure for Card Subassembly 2122-2 (Cont.)

Step	FUNCTION SWITCHES: AMPLIFIER SELECTOR	METER FUNCTION	RATIO TRANS SETTING	LONG RANGE/ SHORT RANGE	GAIN VERNIER	PHASE VERNIER	Procedures and Normal Indications
11	V_{N-S}	OUTPUT		———	5	5	Adjust the variac for 2 volts on the VTVM
12	V_{N-S}	NULL		———	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. Gain equal to 1.000 ± 0.005 Phase equal to 0° ± 0.3°
13	V_{N-S}	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
14	V_{N-S}	NULL		———	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. Gain and Phase to be the same at step 12
15	V_{N-S}	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts. The waveshape pattern on the oscilloscope should be an undistorted sinusoidal
16	V_{E-W}	OUTPUT		———	5	5	Adjust the ac variac for 2 volts on the VTVM
17	V_{E-W}	NULL		———	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. Gain and Phase to be the same as step 12
18	V_{E-W}	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
19	V_{E-W}	NULL		———	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. Gain and Phase to be the same as step 12
20	V_{E-W}	OUTPUT		———	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts on the VTVM. The waveshape pattern on the oscilloscope should be an undistorted sinusoidal
21	COS CA SIN D	OUTPUT		Long Range	5	5	Adjust the ac variac for 2 volts on the VTVM
22	COS CA SIN D	NULL		Long Range	As adjusted for null	As adjusted for null	Adjust resistors R4609 and R4607 on card 2122-2 for a null on the VTVM. Vary the phase and gain verniers to check null. Gain to equal 2.405 ± 0.005. Phase to equal 5.24° ± 0.3°
23	COS CA SIN D	OUTPUT		Long Range	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
24	COS CA SIN D	NULL		Long Range	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. Gain to equal 2.405 ±0.005. Phase to equal 5.24° ±0.3°
25	COS CA SIN D	OUTPUT		Long Range	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts on the VTVM. The waveshape pattern on the oscilloscope should be an undistorted sinusoidal
26	COS CA SIN D	OUTPUT		Short Range	5	5	Adjust the ac variac for 2 volts on the VTVM
27	COS CA SIN D	NULL		Short Range	As adjusted for null	As adjusted for null	Adjust resistor R4605 on card 2122-2 for a null on the VTVM. Vary the phase and gain verniers to check null. Gain to equal 1.158 ± 0.005. Phase to equal 0° ± 0.3°

Table 8-18. Test Procedure for Card Subassembly 2122-2 (Cont.)

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	AMPLIFIER SELECTOR	METER FUNCTION	RATIO TRANS SETTING	LONG RANGE/ SHORT RANGE	GAIN VERNIER	PHASE VERNIER	
28	COS CA SIN D	OUTPUT		Short Range	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
29	COS CA SIN D	NULL		Short Range	As adjusted for null	As adjusted for null	Check the null on the VTVM by varying the phase and gain verniers. Gain to equal 1.158 ± 0.005. Phase to equal 0° ± 0.3°
30	COS CA SIN D	OUTPUT		Short Range	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts. The waveshape pattern on the oscilloscope should be an undistorted sinusoidal

8-73. OPERATIONAL PROCEDURE FOR ANALOG CARD SUBASSEMBLY 2123-1.

a. Connect Plug P2 of Cable Assembly (3, figure 2-4) to J2 of the test station and connect Plug P1321 of this cable assembly to J1321 of card 2123-1.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Set the 2122/2123 switch (20, figure 2-3) to the "2123" position.

d. Turn the DC switch to "ON" (23, figure 2-3) for application of dc voltage to the card subassembly.

e. Connect the VTVM leads to the METER OUTPUT connectors, (17, figure 2-3) on the test station.

f. Set the METER FUNCTION switch (17, figure 2-3) on the "OUTPUT" position and rotate the AMPLIFIER SELECTOR switch (17, figure 2-3) through all its positions. Depress the LONG RANGE/SHORT RANGE (17, figure 2-3) at each position of the AMPLIFIER SELECTOR switch.

g. The voltage reading on the VTVM for each individual position of the AMPLIFIER SELECTOR switch should not be greater than 0.010 volts.

h. Turn on the FIXED AC and the VAR AC switches (22, figure 2-3) on the AC Power Control Panel.

i. Perform the test procedure specified in Table 8-19.

Note

To check null as described in Table 8-19, vary the GAIN and PHASE verniers (17, figure 2-3) alternately until the lowest voltage can be obtained on the VTVM. A null must be obtained before the limits of the verniers are reached.

8-74. USE OF TEST PROCEDURE TABLE 8-19.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-19 for analog card subassembly 2123 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

AMPLIFIER SELECTOR determines the amplifier to be tested.

METER FUNCTION switch controls the electrical position of the VTVM in the "BALANCE OUT", "OUTPUT" and "NULL" positions.

RATIO TRANS. SETTING switch controls the voltage input.

LONG RANGE/SHORT RANGE switch energizes the long range/short range relays on the 2123 card.

PHASE and GAIN VERNIERS: The PHASE VERNIER determines the phase and the GAIN VERNIER determines the gain.

Transistor Check determines operation of slewing transistors.

c. Procedures and Normal Indications: Indicates the individual procedure to be followed for each step, and the applicable eyelet (Logic diagrams Section III) from which the voltage or current reading is obtained.

8-75. MARGINAL VOLTAGE TEST.

8-76. Analog card subassembly 2123-1 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
—44v	"HI" and "LO"
+44v	"HI" and "LO"
—22v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the 9 volt test procedure in Table 8-19. All power supply switches that are not utilized will be left in "NOM".

Table 8-19. Test Procedure for Card Subassembly 2123-1

Step	FUNCTION SWITCHES: AMPLIFIER SELECTOR	METER FUNCTION	RATIO TRANS SETTING	LONG RANGE/ SHORT RANGE	GAIN AND PHASE VERNIERS	TRANSISTOR CHECK	Procedures and Normal Indications
	See Paragraph 8-73 before performing the following steps:						
1	COS LAT dt	OUTPUT	TABLE EO ACCOMPANY TEST	SHORT RANGE	5	5	Adjust the ac variac for 2 volts on the VTVM
2	COS LAT dt	BALANCE	STATION	SHORT RANGE	As adjusted for null	As adjusted for null	Adjust resistor R1272 for a null on the VTVM
3	COS LAT dt	NULL		SHORT RANGE	As adjusted for null	As adjusted for null	Adjust resistor R1266 and R1259 for a null on the VTVM. Vary the gain and phase verniers to insure a null. (See paragraph 8-73 NOTE). Gain to equal 0.608 ± 0.005. Phase to equal —7° ± 0.3°
4	COS LAT dt	OUTPUT		SHORT RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
5	COS LAT dt	NULL		SHORT RANGE	As adjusted for null	As adjusted for null	Check null on the VTVM by varying the gain and phase verniers. (R1266, R1259 should not be adjusted). Gain and Phase to be the same as stated in step 3
6	COS LAT dt	OUTPUT		SHORT RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac 12 volts on the VTVM. The pattern on the oscilloscope should be an undistorted sinusoidal waveshape
7	COS LAT dt	OUTPUT		LONG RANGE	5	5	Adjust the ac variac for 2 volts on the VTVM
8	COS LAT dt	NULL		LONG RANGE	As adjusted for null	As adjusted for null	Check null by varying the gain and phase verniers. Gain to equal 0.608 ± 0.005. Phase to equal —7° ± 0.3°
9	COS LAT dt	OUTPUT		LONG RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
10	COS LAT dt	NULL		LONG RANGE	As adjusted for null	As adjusted for null	Check null by varying the gain and phase verniers. Gain to equal 0.608 ± 0.005. Phase to equal —7° ± 0.3°
11	COS LAT dt	OUTPUT		LONG RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts on the VTVM. The oscilloscope pattern on the oscilloscope should be an undistorted sinusoidal waveshape
12	SIN CA SIN d	OUTPUT		LONG RANGE	5	5	Adjust the ac variac for 2 volts on the VTVM
13	SIN CA SIN d	NULL		LONG RANGE	As adjusted for null	As adjusted for null	Adjust resistors R1215 and R1219 for a null on the VTVM. Vary the gain and phase verniers to insure a null (See paragraph 8-73 NOTE). Gain to equal 2.300 ± 0.005. Phase to equal —4.6° ± 0.3°
14	SIN CA SIN d	OUTPUT		LONG RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
15	SIN CA SIN d	NULL		LONG RANGE	As adjusted for null	As adjusted for null	Check null on the VTVM by varying the gain and phase verniers. (R1215, R1219, should not be adjusted). Gain and Phase to be the same as stated in step 13
16	SIN CA SIN d	OUTPUT		LONG RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts on the VTVM. The pattern on the oscilloscope should be an undistorted sinusoidal waveshape

Table 8-19. Test Procedure for Card Subassembly 2123-1 (Cont.)

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	AMPLIFIER SELECTOR	METER FUNCTION	RATIO TRANS SETTING	LONG RANGE SHORT RANGE	GAIN AND PHASE VERNIERS	TRANSISTOR CHECK	
17	SIN CA SIN d	OUTPUT		SHORT RANGE	5	5	Adjust the ac variac for 2 volts on the VTVM
18	SIN CA SIN d	NULL		SHORT RANGE	As adjusted for null	As adjusted for null	Adjust resistor R1214 for a null on the VTVM. Vary the gain and phase verniers to insure a null (See paragraph 8-73 NOTE). Gain to equal 1.178 ± 0.005. Phase to equal 0° ± 0.3°
19	SIN CA SIN b	OUTPUT		SHORT RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 9 volts on the VTVM
20	SIN CA SIN b	NULL		SHORT RANGE	As adjusted for null	As adjusted for null	Check null on the VTVM by varying the gain and phase verniers. (R1214 should not be adjusted). Gain and Phase to be the same as stated in step 18
21	SIN CA SIN b	OUTPUT		SHORT RANGE	As adjusted for null	As adjusted for null	Adjust the ac variac for 12 volts on the VTVM. The pattern on the oscilloscope should be an undistorted sinusoidal waveshape
						1	Pass light lights
						2	Pass light lights
						3	Pass light lights
						4	Pass light lights

8-77. OPERATIONAL PROCEDURE FOR ANALOG CARD SUBASSEMBLY 2124.

a. Connect Plug P1320 of card 2124 to J2 on 2124 Panel.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Connect the VTVM leads to the AC VTVM connectors (16, figure 2-3) on the test station.

d. Set the METER FUNCTION switch (16, figure 2-3) on the "OUTPUT" position and the TEST switch (16, figure 2-3) to the "DIST" position.

e. Set the Fixed AC and the VAR AC switches (22, figure 2-3) to "OFF".

f. Turn the DC switch to "ON" (23, figure 2-3) for application of dc voltage to the card subassembly.

g. The voltage reading on the VTVM should not exceed a maximum of 0.050 volts.

h. Turn on the Fixed AC switch (22, figure 2-3) on the AC Power Control Panel.

i. The voltage reading on the VTVM should not exceed a maximum of 1 volt.

j. Set TEST switch (16, figure 2-3) in the "HEADING" position to obtain a voltage reading not to exceed a maximum of 0.100 volts on the VTVM.

k. Turn the VAR AC switch (22, figure 2-3) on the AC Power Control Panel.

l. Connect the vertical input of the oscilloscope to the VTVM.

m. Connect the External Sweep input of the oscilloscope to the HORIZONTAL INPUT connector (22, figure 2-3) on the AC Power Control Panel.

n. Set the Horizontal Display switch on the oscilloscope to the External Sweep x 10 and, when checking phase, adjust the External Sweep attenuator so the full Lissajou pattern is displayed.

Note

When the METER FUNCTION switch is on the "INPUT" position, adjust the VAR PHASE AC dial (22, figure 2-3) until the elliptical waveshape (figure 8-4) on the oscilloscope indicates a closed pattern when the VAR PHASE AC dial is at zero. When the METER FUNCTION switch in on the "OUTPUT" position, adjust the VAR PHASE AC dial until the elliptical waveshape (figure 8-4) on the oscilloscope indicates a closed pattern. The VAR PHASE AC dial will read the phase shift through the amplifier under test. If the elliptical waveshape on the oscilloscope is closed and the VAR PHASE AC dial is not on 180° or 0°, the VAR PHASE AC dial must be calibrated.

o. Perform the test procedure specified in Table 8-20.

8-78. USE OF TEST PROCEDURE TABLE 8-20.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-20 for analog card subassembly 2124 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

c. TEST Switch determines the amplifier to be tested.

d. TACH-DIST-QUAD switch selects the input to the distance amplifier.

e. METER FUNCTION switch controls the electrical position of the VTVM in the "OFF", "IN" and "OUT" position.

f. VAR PHASE AC dial measures the phase shift.

g. NORMAL-OVERLOAD switch applies a larger signal input to determine the point of saturation.

h. Procedures and Normal Indications: Indicate the individual procedure to be followed for each step, and the applicable eyelet (Logic diagrams, Section III) from which the count, voltage or current reading is obtained.

8-79. MARGINAL VOLTAGE TEST.

8-80. Analog card subassembly 2124 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"
−44v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-20. All power supply switches that are not utilized will be left in "NOM".

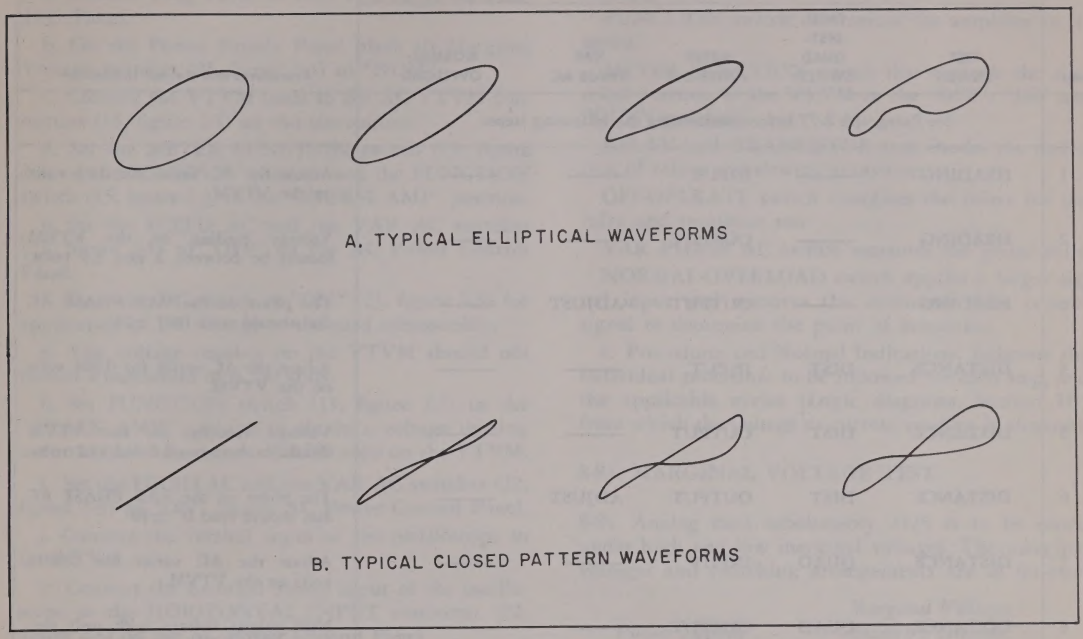


Figure 8-4 Typical Lissajou Patterns, Analog Card Subassemblies

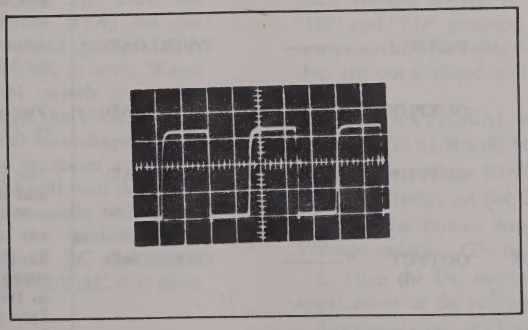


Figure 8–5. Card Subassembly 2124, High Frequency Pulses

Table 8-20. Test Procedure for Card Subassembly 2124

Step	FUNCTION SWITCHES					Procedures and Normal Indications
	TEST SWITCH	TACH-DIST-QUAD SWITCH	METER FUNCTION	VAR PHASE AC	NORMAL-OVERLOAD	
	See Paragraph 8-77 before performing the following steps:					
1	HEADING	———	INPUT	———	———	Adjust the AC variac for 0.05 volts on the VTVM.
2	HEADING	———	OUTPUT	———	———	Voltage reading on the VTVM should be between 2 and 3.5 volts.
3	HEADING	———	OUTPUT	ADJUST	———	The phase on the VAR PHASE AC dial should read 180° ±25°.
4	DISTANCE	DIST	INPUT	———	———	Adjust the AC variac for 0.004 volts on the VTVM.
5	DISTANCE	DIST	OUTPUT	———	———	Voltage reading on the VTVM should be between 6.8 and 13.2 volts.
6	DISTANCE	DIST	OUTPUT	ADJUST	———	The phase on the VAR PHASE AC dial should read 0° ±30°.
7	DISTANCE	QUAD	INPUT	———	———	Adjust the AC variac for 0.0025 volts on the VTVM.
8	DISTANCE	QUAD	OUTPUT	———	———	Null output voltage with null vernier. The voltage reading on the VTVM must not exceed 0.5 volts.
9	DISTANCE	TACH	INPUT	———	———	Adjust the AC variac for 0.38 volts on the VTVM.
10	DISTANCE	TACH	OUTPUT	———	———	Voltage on the VTVM should be between 1.52 and 4.56 volts.
11	DISTANCE	TACH	OUTPUT	ADJUST	———	The phase on the VAR PHASE AC dial should read 180° ±30°.
12	DISTANCE	DIST	INPUT	———	OVERLOAD	Adjust the AC variac for 1 volt on the VTVM.
13	DISTANCE	DIST	OUTPUT	———	OVERLOAD	Voltage reading on the VTVM must be 15 volts minimum.
14	DISTANCE	DIST	OUTPUT	ADJUST	OVERLOAD	The phase on the VAR PHASE AC dial should read between +20° and —40°.
15	OFF	DIST	OUTPUT	———	OVERLOAD	To check the High Frequency Oscillator, connect the Output connector to the Beckman Berkeley Universal Eput and Timer Model 7370R. The frequency displayed on the Eput and Timer Model 7370R should be 27kc ±270 cycles. The negative pulse width should be 15 ±3μ sec and have an amplitude of 15 v minimum. Remove cable and check resistance between pins L and A of Plug P1320 which should be approximately 2.7K.

8-81. OPERATIONAL PROCEDURE FOR ANALOG CARD SUBASSEMBLY 2125.

a. Connect Plug P1339 of card 2125 to J2 on 2125-2145 Panel.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Connect the VTVM leads to the AC VTVM connectors (15, figure 2-3) on the test station.

d. Set the METER FUNCTION switch (15, figure 2-3) on the "OUTPUT" position and the FUNCTION switch (15, figure 2-3) to the "COURSE AMP" position.

e. Set the FIXED AC and the VAR AC switches (22, figure 2-3) to "OFF" on the AC Power Control Panel.

f. Turn the DC switch to "ON" (23, figure 2-3) for application of DC voltage to the card subassembly.

g. The voltage reading on the VTVM should not exceed a maximum of 0.200 volts.

h. Set FUNCTION switch (15, figure 2-3) in the "TRACK AMP" position to obtain a voltage reading not to exceed a maximum of 0.200 volts on the VTVM.

i. Set the FIXED AC and the VAR AC switches (22, figure 2-3) to "ON" on the AC Power Control Panel.

j. Connect the vertical input of the oscilloscope to the VTVM.

k. Connect the External Sweep input of the oscilloscope to the HORIZONTAL INPUT connector (22, figure 2-3) on the AC Power Control Panel.

1. Set the Horizontal Display switch on the oscilloscope to the External Sweep x 10 and when checking phase, adjust the External Sweep attenuator so the full Lissajou pattern is displayed.

Note

When the METER FUNCTION switch is on the "INPUT" position adjust the VAR PHASE AC dial (22, figure 2-3) until the elliptical waveshape (figure 8-1A) on the oscilloscope indicates a closed pattern with the VAR PHASE AC dial set at zero. When the METER FUNCTION switch is on the "OUTPUT" position adjust the VAR PHASE AC dial until the elliptical waveshape (figure 8-1B) on the oscilloscope indicates a pattern. The VAR PHASE AC dial will read the phase shift through the amplifier under test. If the elliptical waveshape on the oscilloscope is closed and the VAR PHASE AC dial is not on 180° or 0° the VAR PHASE AC dial must be calibrated.

m. Perform the test procedure specified in Table 8-21.

8-82. USE OF TEST PROCEDURE TABLE 8-21.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-21 for analog card subassembly 2125 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

FUNCTION switch determines the amplifier to be tested.

METER FUNCTION switch that controls the electrical position of the VTVM in the "OFF", "IN" and "OUT" positions.

RELAY and TRANSISTOR test checks the operation of relays and slewing transistors.

OFF-OPERATE switch energizes the relays for the relay and transistor test.

VAR PHASE AC switch measures the phase shift.

NORMAL-OVERLOAD switch applies a larger signal input and removes the automatic gain control signal to determine the point of saturation.

c. Procedures and Normal Indications: Indicates the individual procedure to be followed for each step, and the applicable eyelet (Logic diagrams, Section III) from which the voltage or current reading is obtained.

8-83. MARGINAL VOLTAGE TEST.

8-84. Analog card subassembly 2125 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supply	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"
—44v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-21. All power supply switches that are not utilized will be left in "NOM".

8-85. OPERATIONAL PROCEDURE FOR ANALOG CARD SUBASSEMBLY 2126-1.

a. Connect Plugs P1337, P1336 of card 2126-1 to J2, J3, respectively, on the 2126 Panel.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Turn the DC switch to "ON" (23, figure 2-3) for application of dc voltage to the card subassembly.

d. Connect the VTVM leads to the AC VTVM connectors (14, figure 2-3) on the test station.

e. Set the METER FUNCTION switch (14, figure 2-3) on the "OUTPUT" position and the TEST switch (14, figure 2-3) to the "LAT" position.

f. Set the FIXED AC switch (22, figure 2-3) to "ON" and he VAR AC switch (22, figure 2-3) to "OFF" on the AC Power Control Panel.

Table 8-21. Test Procedure for Card Subassembly 2125

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	FUNC-TION SWITCH	METER FUNC-TION	RELAY AND TRAN-SISTOR TEST	OFF-OPERATE	VAR PHASE AC	NORMAL-OVERLOAD	
	See Paragraph 8-81 before performing the following steps:						
1	COURSE	INPUT	———	———	———	———	Adjust the AC variac for 0.005 volts on the VTVM.
2	COURSE	OUTPUT	———	———	———	———	Voltage reading on the VTVM should be between 0.35 and 0.65 volts.
3	COURSE	OUTPUT	———	———	ADJUST	———	The phase on the VAR PHASE AC dial should read 0° ±20°.
4	COURSE	OUTPUT	———	———	———	OVERLOAD	a. Adjust the AC variac for 6 volts on the VTVM. The voltage is displayed on the vertical input of the oscilloscope with an unsaturated sine wave without distortion being observed. b. Increase the AC variac until the sine wave is completely saturated. The voltage reading must exceed 9 volts on the VTVM.
5	TRACK	INPUT	———	———	———	———	Adjust the AC variac for 12 volts on the VTVM.
6	TRACK	OUTPUT	———	———	———	———	Voltage reading on the VTVM should be between 2.8 and 5.2 volts.
7	TRACK	OUTPUT	———	———	ADJUST	———	The phase on the VAR PHASE AC dial should read 0° ±20°.
8	TRACK	OUTPUT	———	———	———	OVERLOAD	Same as step 4 (a. and b.)
9	TRACK	OUTPUT	FIX/NAV	OFF	———	———	Good light operates.
10	TRACK	OUTPUT	FIX/NAV	OPERATE	———	———	Good light operates.
11	TRACK	OUTPUT	DIST	OFF	———	———	Good light operates.
12	TRACK	OUTPUT	DIST	OPERATE	———	———	Good light operates.
13	TRACK	OUTPUT	Vn-s	OFF	———	———	Good light operates.
							In steps 15 through 22 the multimeter is connected to the Slewing Test terminals (15, figure 2-3) on the Test Panel. Set the multimeter on the 50 vdc scale, positive polarity.
15	TRACK	OUTPUT	N	OFF	———	———	Voltage on multimeter should read +44 ±3 volts.
16	TRACK	OUTPUT	N	OPERATE	———	———	Voltage on multimeter should read +22 ±1.5 volts.
17	TRACK	OUTPUT	S	OFF	———	———	Voltage on multimeter should read +44 ±3 volts.
18	TRACK	OUTPUT	S	OPERATE	———	———	Voltage on multimeter should read +22 ±1.5 volts.
19	TRACK	OUTPUT	E	OFF	———	———	Voltage on multimeter should read +44 ±3 volts.
20	TRACK	OUTPUT	E	OPERATE	———	———	Voltage on multimeter should read +22 ±3 volts.
21	TRACK	OUTPUT	W	OFF	———	———	Voltage on multimeter should read +44 ±3 volts.
22	TRACK	OUTPUT	W	OPERATE	———	———	Voltage on multimeter should read +22 ±1.5 volts.

g. Set the CRSE/FINE-CRSE-FINE switch (14, figure 2-3) in the "CRSE" position. The voltage reading on the VTVM should not exceed a maximum of 0.500 volts.

h. Set the TEST switch (14, figure 2-3) in the "ROLL" position. The voltage reading on the VTVM should not exceed a maximum of 0.500 volts.

i. Turn on the VAR AC switch (22, figure 2-3) on the AC Power Control Panel.

j. Connect the vertical input of the oscilloscope to the VTVM.

k. Connect the External Sweep input of the oscilloscope to the HORIZONTAL INPUT connector (22, figure 2-3) on the AC Power Control Panel.

l. Set the Horizontal Display switch on the oscilloscope to the External Sweep x 10 and, when checking phase, adjust the External Sweep attenuator so the full Lissajou pattern is displayed.

Note

When the METER FUNCTION switch is on the "INPUT" position, adjust the VAR PHASE AC dial (22, figure 2-3) until the elliptical waveshape (figure 8-4) on the oscilloscope indicates a closed pattern with the VAR PHASE AC dial set at zero. When the METER FUNCTION switch is on the "OUTPUT" position, adjust the VAR PHASE AC dial until the elliptical waveshape (figure (8-4) on the oscilloscope indicates a closed pattern. The VAR PHASE AC dial will read the phase shift through the amplifier under test. If the elliptical waveshape on the oscilloscope is closed and the VAR PHASE AC dial is not on 180° or 0°, the VAR PHASE AC dial must be calibrated.

m. Perform the test procedure specified in Table 8-22.

8-86. USE OF TEST PROCEDURE TABLE 8-22.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-22 for analog card subassembly 2126-1 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

c. TEST Switch determines the amplifier to be tested.

d. METER FUNCTION switch controls the electrical position of the VTVM in the "OFF", "IN" and "OUT" positions.

e. CRSE/FINE-CRSE-FINE switch determines the input for the latitude amplifiers.

f. VAR PHASE AC switch measures the phase shift.

g. TAS FREQ switch changes the frequency and controls the wind oven.

h. RELAY TEST switch determines the operation of the slewing relays.

i. Procedures and Normal Indications: Indicate the individual procedure to be followed for each step, and the applicable eyelet (Logic diagrams, Section III) from which the count, voltage or current reading is obtained.

8-87. MARGINAL VOLTAGE TEST.

8-88. Analog card subassembly 2126-1 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-22. All power supply switches that are not utilized will be left in "NOM".

The TAS FREQ switch (14, figure 2-3) which is directly affected by the +22 volt Power Supply, has different tolerances for the marginal voltage switch positions. They are as follows:

TAS FREQ	*Power Supply*	*Maximum Freq.*	*Minimum Freq.*
1	+22.5v	4345 cps	
2	+22.5v	3270 cps	
3	+22.5v	2193 cps	
4	+22.5v	1117 cps	
5	+22.5v	less than 200 cps	
1	+21.5v		4025 cps
2	+21.5v		3010 cps
3	+21.5v		1993 cps
4	+21.5v		less than 200 cps
5	+21.5v		less than 200 cps

8-89. OPERATIONAL PROCEDURE FOR ANALOG CARD SUBASSEMBLY 2127.

a. Connect Plug P1335 of card 2127 to J2 of 2127-2140 Panel.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Turn the DC switch to "ON" (23, figure 2-3) for application of dc voltage to the card subassembly.

d. Connect the VTVM leads to the AC VTVM connectors (13, figure 2-3) on the test station.

Table 8-22. Test Procedure for Card Subassembly 2126-1

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	TEST SWITCH	METER FUNCTION	CRSE/FINE-CRSE-FINE	VAR PHASE AC	TAS FREQ	RELAY TEST	
	See Paragraph 8-81 before performing the following steps:						
1	LAT	INPUT	CRSE	———	———	———	Adjust the AC variac for 0.400 volts on the VTVM.
2	LAT	OUTPUT	CRSE	———	———	———	Voltage reading on the VTVM must be 42 volts minimum.
3	LAT	OUTPUT	CRSE	ADJUST	———	———	The phase on the VAR PHASE AC dial should read 180° ±40°.
4	LAT	INPUT	CRSE	———	———	———	Adjust the AC variac for 0.100 volts on the VTVM.
5	LAT	OUTPUT	CRSE	———	———	———	Voltage reading on the VTVM must not exceed 1 volt.
6	LAT	INPUT	CRSE	———	———	———	Adjust the AC variac for 0.050 volts on the VTVM.
7	LAT	OUTPUT	CRSE	———	———	———	Voltage reading on the VTVM must not exceed 0.500 volts.
8	LAT	INPUT	FINE	———	———	———	Adjust the AC variac for 0.250 volts on the VTVM.
9	LAT	OUTPUT	FINE	———	———	———	Voltage reading on the VTVM must be 6.25 volts.
10	LAT	OUTPUT	FINE	ADJUST	———	———	The phase on the VAR PHASE AC dial should read between 160° and 210°.
11	LAT	OUTPUT	CRSE/FINE	———	———	———	Turn the VAR AC switch to "OFF". The voltage reading on the VTVM must be 45 volts minimum.
12	LAT	OUTPUT	CRSE/FINE	ADJUST	———	———	The phase on the VAR PHASE AC dial should read 0° ±20°.
13	LAT	INPUT	CRSE/FINE	———	———	———	Turn the VAR AC switch to "ON" and adjust the AC variac for 0.400 volts on the VTVM.
14	LAT	OUTPUT	CRSE/FINE	———	———	———	Voltage reading on the VTVM must be 45 volts minimum.
15	LAT	OUTPUT	CRSE/FINE	———	———	———	The phase on the VAR PHASE AC dial should read 0° ±30°.
16	ROLL	INPUT	CRSE	———	———	———	Adjust the AC variac for 0.25 volts on the VTVM.
17	ROLL	OUTPUT	CRSE	———	———	———	Voltage reading on the VTVM must be between 15 and 25 volts.
18	ROLL	OUTPUT	CRSE	ADJUST	———	———	The phase on the VAR PHASE AC dial should read 0° ±20°.
19	———	———	———	———	———	———	In steps 20 through 26 connect the Beckman/Berkeley Universal Eput and Timer Model 7370R to the TAS Output connector (14, figure 2-3) on the 2126 test panel.

Table 8-22. Test Procedure for Card Subassembly 2126-1 (Cont.)

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	TEST SWITCH	METER FUNC-TION	CRSE/FINE-CRSE-FINE	VAR PHASE AC	TAS FREQ	RELAY TEST	
20	———	———	———	———	1	———	Adjust resistor R4154 on the 2126-1 card for 4185 cps ±42 cps on the Eput and Timer Model 7370R. The OVEN light (14, figure 2-3) is "ON".
21	———	———	———	———	2	———	Frequency displayed on Eput and Timer Model 7370R should be 3140 cps ±42 cps. The OVEN light (14, figure 2-3) is "OFF" for steps 21, 22, 23 and 24.
22	———	———	———	———	3	———	Frequency displayed on Eput and Timer Model 7370R should be 2093 cps ±42 cps.
23	———	———	———	———	4	———	Frequency displayed on Eput and Timer Model 7370R should be 1047 cps ±42 cps.
24	———	———	———	———	5	———	Frequency displayed on Eput and Timer Model 7370R must be less than 200 cps.
25	———	———	———	———	———	V_{E-W}	Set OFF-OPERATE switch (14, figure 2-3) to "OFF". The GOOD (green) light (14, figure 2-3) operates.
26	———	———	———	———	———	V_{E-W}	Set OFF-OPERATE switch (14, figure 2-3) to "OPERATE". The GOOD (green) light (14, figure 2-3) operates.

The TAS FREQ switch (14, figure 2-3) which is directly affected by the +22 volt Power Supply, has different tolerances for the marginal voltage switch positions. They are as follows:

TAS FREQ	*Power Supply*	*Maximum Freq.*	*Minimum Freq.*
1	+22.5v	4345 cps	
2	+22.5v	3270 cps	
3	+22.5v	2193 cps	
4	+22.5v	1117 cps	
5	+22.5v	less than 200 cps	
1	+21.5v		4025 cps
2	+21.5v		3010 cps
3	+21.5v		1993 cps
4	+21.5v		less than 200 cps
5	+21.5v		less than 200 cps

e. Set the FIXED AC switch (22, figure 2-3) to "ON" and the VAR AC switch (22, figure 2-3) to "OFF" on the AC Power Control Panel.

f. Set the METER FUNCTION switch (13, figure 2-3) on the "OUTPUT" position and the TEST switch (13, figure 2-3) to the "LONG" position.

g. Set the CRSE/FINE-CRSE-FINE switch (13, figure 2-3) in the "CRSE" position. The voltage reading on the VTVM should not exceed a maximum of 0.500 volts.

h. Set the TEST switch (13, figure 2-3) in the "PITCH" position. The voltage reading on the VTVM should not exceed a maximum of 0.500 volts.

i. Turn on the VAR AC switch (22, figure 2-3) on the AC Power Control Panel.

j. Connect the vertical input of the oscilloscope to the VTVM.

k. Connect the External Sweep input of the oscilloscope to the HORIZONTAL INPUT connector (22, figure 2-3) on the AC Power Control Panel.

l. Set the Horizontal Display switch on the oscilloscope to the External Sweep x 10 and, when checking phase, adjust the External Sweep attenuator so the full Lissajou pattern is displayed.

Note

When the METER FUNCTION switch is on the "INPUT" position, adjust the VAR PHASE AC dial (22, figure 2-3) until the lissajou pattern (figure 8-4) on the oscilloscope indicates a closed pattern with the VAR PHASE AC dial set at zero. When the METER FUNCTION switch is on the "OUTPUT" position, adjust the VAR PHASE AC dial until the lissajou pattern (figure 8-4) on the oscilloscope indicates a closed pattern. The VAR PHASE AC dial will read the phase shift through the amplifier under test. If the lissajou pattern on the oscilloscope is closed and the VAR PHASE AC dial is not on 180° or 0°, the VAR PHASE AC dial must be calibrated.

m. Perform the test procedure specified in Table 8-23.

8-90. USE OF TEST PROCEDURE TABLE 8-23.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-23 for analog card subassembly 2127 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

c. TEST Switch determines the amplifier to be tested.

d. METER FUNCTION switch controls the electrical position of the VTVM in the "OFF", "IN" and "OUT" positions.

e. CRSE/FINE-CRSE-FINE switch determines the input for the longitude amplifiers.

f. VAR PHASE AC switch determines the phase shift.

g. Procedures and Normal Indications: Indicate the individual procedure to be followed for each step, and the applicable eyelet (Logic diagrams, Section III) from which the count, voltage or current reading is obtained.

8-91. MARGINAL VOLTAGE TEST.

8-92. Analog card subassembly 2127 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-23. All power supply switches that are not utilized will be left in "NOM".

Table 8-23. Test Procedure for Card Subassembly 2127

Step	FUNCTION SWITCHES				Procedures and Normal Indications
	TEST SWITCH	METER FUNCTION	CRSE/FINE-CRSE-FINE	VAR PHASE AC	
	See Paragraph 8-89 before performing the following steps:				
1	LONG	INPUT	CRSE	———	Adjust the AC variac for 0.400 volts on the VTVM.
2	LONG	OUTPUT	CRSE	———	Voltage reading on the VTVM must be 45 volts minimum.
3	LONG	OUTPUT	CRSE	ADJUST	The phase on the VAR PHASE AC dial should read 0° ±20°.
4	LONG	INPUT	CRSE	———	Adjust the AC variac for 0.100 volts on the VTVM.
5	LONG	OUTPUT	CRSE	———	Voltage reading on the VTVM must not exceed 1 volt.
6	LONG	INPUT	CRSE	———	Adjust the AC variac for 0.050 volts on the VTVM.
7	LONG	OUTPUT	CRSE	———	Voltage reading on the VTVM must not exceed 0.500 volts.
8	LONG	INPUT	FINE	———	Adjust the AC variac for 0.250 volts on the VTVM.
9	LONG	OUTPUT	FINE	———	Voltage reading on the VTVM must be 7.5 volts minimum.
10	LONG	OUTPUT	FINE	ADJUST	The phase on the VAR PHASE AC dial should read 180° ±20°.
11	LONG	INPUT	CRSE/FINE	———	Adjust the AC variac for 0.400 volts on the VTVM.
12	LONG	OUTPUT	CRSE/FINE	———	Voltage reading on the VTVM must be 45 volts minimum.
13	LONG	OUTPUT	CRSE/FINE	ADJUST	The phase on the VAR PHASE AC dial should read 0° ±20°.
14	LONG	OUTPUT	CRSE/FINE	———	Set the VAR AC switch to "OFF". A 180° phase reversal should take place.
15	LONG	OUTPUT	CRSE/FINE	———	Set the VAR AC switch to "ON".
16	PITCH	INPUT	CRSE	———	Adjust the AC variac for 0.250 volts on the VTVM.
17	PITCH	OUTPUT	CRSE	———	Voltage reading on the VTVM must be between 15 and 25 volts.
18	PITCH	OUTPUT	CRSE	ADJUST	The phase on the VAR PHASE AC dial should read 180° ±20°.

Table 8-24. Test Procedure for Card Subassembly 2128-1

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	PUSH TO TEST	NETWORK POSITION	NETWORK SELECTOR	DIODE CONDUCT-ANCE	DIODE SELEC-TION	ADJ SWITCH	
	See Paragraph 8-85 before performing the following steps:						
1	RELEASED	1	ZERO	OFF	1	ZERO ADJ	Set Zero Adj switch (21, figure 2-3) to zero on Microammeter (21, figure 2-3) on the 2128 panel.
2	RELEASED	1	CAL	OFF	1	CALIBRATE	Adjust the Calibrate switch (21, figure 2-3) on 2128 panel for 100 on the Microammeter.
3	DEPRESSED	1	Z1	OFF	1		Meter should read 100 ±50.
4	RELEASED	2	Z1	OFF	1	NULL ADJ	Adjust Null Adj switch (21), figure 2-3) for the low est reading on the Meter.
5	DEPRESSED	2	Z1	OFF	1		Meter should read 100 ±50.
6	RELEASED	3	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
7	DEPRESSED	3	Z1	OFF	1		Meter should read 100 ±50.
8	RELEASED	4	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
9	DEPRESSED	5	Z1	OFF	1		Meter should read 100 ±50.
10	RELEASED	5	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
11	DEPRESSED	4	Z1	OFF	1		Meter should read 100 ±50.

Table 8-24. Test Procedure for Card Subassembly 2128-1 (Cont.)

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	PUSH TO TEST	NETWORK POSITION	NETWORK SELECTOR	DIODE CONDUCT-ANCE	DIODE SELEC-TION	ADJ SWITCH	
12	RELEASED	6	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
13	DEPRESSED	6	Z1	OFF	1		Meter should read 100 ±50.
14	RELEASED	7	Z1	OFF	1	NULL ADJ	Adjust Null Adj. for the lowest reading on the Meter.
15	DEPRESSED	7	Z1	OFF	1		Meter should read 100 ±50.
16	RELEASED	8	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
17	DEPRESSED	8	Z1	OFF	1		Meter should read 100 ±50.
18	RELEASED	9	Z1	OFF	1	NULL ADJ	Adjust Null, Adj for the lowest reading on the Meter.
19	DEPRESSED	9	Z1	OFF	1	———	Meter should read 100 ±50.
20							In steps 20 through 44 the PASS (green) light (21, figure 2-3) should operate indicating an acceptable 2128-1 card.
21	RELEASED	1	Z1	2	1	———	
22	RELEASED	1	Z1	2	2	———	
23	RELEASED	1	Z1	2	3	———	
24	RELEASED	1	Z1	2	4	———	
25	RELEASED	1	Z1	2	5	———	
26	RELEASED	1	Z1	2	6	———	
27	RELEASED	1	Z1	3	1	———	
28	RELEASED	1	Z1	3	2	———	
29	RELEASED	1	Z1	3	3	———	
30	RELEASED	1	Z1	3	4	———	
31	RELEASED	1	Z1	3	5	———	
32	RELEASED	1	Z1	3	6	———	
33	RELEASED	4	Z1	1	1	———	
34	RELEASED	5	Z1	1	1	———	
35	RELEASED	6	Z1	1	1	———	
36	RELEASED	7	Z1	1	1	———	
37	RELEASED	8	Z1	1	1	———	
38	RELEASED	9	Z1	1	1	———	
39	RELEASED	9	Z1	4	———	———	
40	RELEASED	8	Z1	4	———	———	
41	RELEASED	7	Z1	4	———	———	
42	RELEASED	6	Z1	4	———	———	
43	RELEASED	5	Z1	4	———	———	
44	RELEASED	4	Z1	4	———	———	
45	RELEASED	———	———	———			Repeat steps 1 thru 44 with the Network Selector switch on the Z2 position.

Table 8-24. Test Procedure for Card Subassembly 2128-1 (Cont.)

Step	FUNCTION SWITCHES						Procedures and Normal Indications
	PUSH TO TEST	NETWORK POSITION	NETWORK SELECTOR	DIODE CONDUCT-ANCE	DIODE SELEC-TION	ADJ SWITCH	
12	RELEASED	6	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
13	DEPRESSED	6	Z1	OFF	1		Meter should read 100 ±50.
14	RELEASED	7	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
15	DEPRESSED	7	Z1	OFF	1		Meter should read 100 ±50.
16	RELEASED	8	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
17	DEPRESSED	8	Z1	OFF	1		Meter should read 100 ±50.
18	RELEASED	9	Z1	OFF	1	NULL ADJ	Adjust Null Adj for the lowest reading on the Meter.
19	DEPRESSED	9	Z1	OFF	1	———	Meter should read 100 ±50.
20							In steps 20 through 44 the PASS (green) light (21, figure 2-3) should operate indicating an acceptable 2128-1 card.
21	RELEASED	1	Z1	2	1	———	
22	RELEASED	1	Z1	2	2	———	
23	RELEASED	1	Z1	2	3	———	
24	RELEASED	1	Z1	2	4	———	
25	RELEASED	1	Z1	2	5	———	
26	RELEASED	1	Z1	2	6	———	
27	RELEASED	1	Z1	3	1	———	
28	RELEASED	1	Z1	3	2	———	
29	RELEASED	1	Z1	3	3	———	
30	RELEASED	1	Z1	3	4	———	
31	RELEASED	1	Z1	3	5	———	
32	RELEASED	1	Z1	3	6	———	
33	RELEASED	4	Z1	1	1	———	
34	RELEASED	5	Z1	1	1	———	
35	RELEASED	6	Z1	1	1	———	
36	RELEASED	7	Z1	1	1	———	
37	RELEASED	8	Z1	1	1	———	
38	RELEASED	9	Z1	1	1	———	
39	RELEASED	9	Z1	4	———	———	
40	RELEASED	8	Z1	4	———	———	
41	RELEASED	7	Z1	4	———	———	
42	RELEASED	6	Z1	4	———	———	
43	RELEASED	5	Z1	4	———	———	
44	RELEASED	4	Z1	4	———	———	
45	RELEASED	———	———	———	———	———	Repeat steps 1 thru 44 with the Network Selector switch on the Z2 position.

8-97. OPERATIONAL PROCEDURE FOR THE ANALOG PORTION OF CARD SUBASSEMBLY 2129.

a. Connect Plug P2 of Cable Assembly (3, figure 2-4) to J2 of the test station and connect Plug P1338 of this cable assembly to J1338 of card 2129.

b. On the Power Supply Panel place all Marginal Voltage switches (25, figure 2-3) to "NOM".

c. Turn the DC switch to "ON" (25, figure 2-3) for application of dc voltage to the card subassembly.

d. Connect the VTVM leads to the AC VTVM connectors (8, figure 2-3) on the test station.

e. Set the FIXED AC switch (22, figure 2-3) and the VAR AC switch (22, figure 2-3) to "OFF" on the AC Power Control Panel.

f. Set the METER FUNCTION switch (8, figure 2-3) on the "OUTPUT" position and the TEST switch (8, figure 2-3) to the "DRIFT ANGLE" position. The voltage reading on the VTVM should not exceed a maximum of 0.100 volts.

g. Set the TEST switch (8, figure 2-3) to the "GND SPEED" position. The voltage reading on the VTVM should not exceed a maximum of 0.100 volts.

h. Turn on the FIXED AC and the VAR AC switches (22, figure 2-3) on the AC Power Control Panel.

i. Connect the vertical input of the oscilloscope to the VTVM.

j. Connect the External Sweep input of the oscilloscope to the HORIZONTAL INPUT connector (22, figure 2-3) on the AC Power Control Panel.

k. Set the Horizontal Display switch on the oscilloscope to the External Sweep x 10, and when checking phase, adjust the External Sweep attenuator so the full Lissajou pattern is displayed.

Note

When the METER FUNCTION switch is on the "INPUT" position, adjust the VAR PHASE AC dial (22, figure 2-3) until the elliptical waveshape (figure 8-4) on the oscilloscope indicates a closed pattern when the VAR PHASE AC dial is at zero. When the METER FUNCTION switch is on the "OUTPUT" position, adjust the VAR PHASE AC dial until the elliptical waveshape on the oscilloscope is closed and the VAR PHASE AC dial is not on 180° or 0°; the VAR PHASE AC dial must be calibrated.

l. Perform the test procedure specified in Table 8-25.

8-98. USE OF TEST PROCEDURE TABLE 8-25.

a. Step: numbered consecutively.

b. Function Switches: Switch positions on Table 8-25 for the analog portion of card subassembly 2129 are positioned to program the inputs and outputs of the subassembly being tested. Description and basic functions are as follows:

c. TEST Switch determines the amplifier to be tested.

d. METER FUNCTION switch controls the electrical position of the VTVM, the "OFF", "GS COMMON, MODE INPUT", and "OUT" positions.

e. G.S. DIFFERENCE INPUT switch is a variable input used on the ground track amplifier.

f. VAR PHASE AC switch determines the phase shifts.

g. NORMAL-OVERLOAD switch determines which input will be used and which will be grounded.

h. —44 OFF 160 MA switch controls the 4v Power Supply.

i. Procedures and Normal Indications: Indicate the individual procedure to be followed for each step, and the applicable eyelet (Logic Diagrams, Section III) from which the count, voltage or current reading is obtained.

8-99. MARGINAL VOLTAGE TEST.

8-100. Analog card subassembly 2129 is to be tested under high and low marginal voltages. The marginal voltages and switching arrangements are as follows:

Power Supplies	*Marginal Voltage Switch Positions*
+44v	"HI" and "LO"
+34v	"HI" and "LO"
+22v	"HI" and "LO"
+18v	"HI" and "LO"
—44v	"HI" and "LO"

Each voltage source is to be set individually at its "HI" and "LO" position. After each setting repeat the test procedure in Table 8-25. All power supply switches that are not utilized will be left in "NOM".

Table 8-25. Test Procedure for Card Subassembly 2129

Step	FUNCTION SWITCHES: TEST SWITCH	METER FUNCTION	GS DIFFERENCE INPUT	VAR PHASE AC	NORMAL OVERLOAD	−44 OFF +160 MA	Procedures and Normal Indications
	See Paragraph 8-97 before performing the following steps:						
1	GROUND SPEED	INPUT	ADJUST		NORMAL		Adjust the GS Difference Input Control for 0.010 volts on the VTVM.
2	GROUND SPEED	OUTPUT	ADJUST		NORMAL		Voltage reading on the VTVM should be between 8 and 16 volts.
3	GROUND SPEED	OUTPUT	ADJUST	ADJUST	NORMAL		The phase on the VAR PHASE AC dial should read 0° ±20°.
4	GROUND SPEED	OUTPUT	ADJUST	ADJUST	OVERLOAD		Voltage reading on the VTVM should be between 8 and 16 volts. The phase on the VAR PHASE AC dial should read 180° ±20°.
5	DRIFT ANGLE	INPUT	ADJUST	ADJUST	OVERLOAD		Adjust the AC variac for 0.050 volts on the VTVM.
6	DRIFT ANGLE	OUTPUT	ADJUST	ADJUST	OVERLOAD		Voltage reading on the VTVM should be between 4 and 6 volts.
7	DRIFT ANGLE	OUTPUT	ADJUST	ADJUST	OVERLOAD		The phase on the VAR PHASE AC dial should read 0° ±20°.
8	GS NET	INPUT	———	———	———	———	Adjust resistors R1761 and R1762 on card 2129 for a null on the VTVM. The null magnitude should be less than 0.015 volts.
9	GS NET	INPUT	———	———	———	−44	Voltage reading on the Four Volt Supply Test meter (8, figure 2-3) should be between 4 and 5.6 volts.
10	GS NET	INPUT	———	———	———	+160 MA	Voltage reading on the Four Volt Supply Test meter should be between 4 and 5.6 volts.

SECTION IX
PPC UNIT REASSEMBLY AND TESTING

9-1. GENERAL.

9-2. SCOPE. This section contains information for carrying out minimum performance standards for the PPC Unit. Also included are a block diagram of the PCC unit (Figure 9-1) and a test connection diagram (Figure 9-2). The tests outlined in this section are performed with equipment included in Depot—Station 7.

9-3. REASSEMBLY. Reassembly of the PPC Unit is accomplished by reversing the disassembly procedure as outlined in Section IV.

9-4. PPC UNIT TEST.

9-5. GENERAL. In order to perform a test on the PPC it is necessary to have it function as a member of the Computer Group. As can be seen from the block diagram (Figure 9-1) many PPC inputs and outputs are interconnected with the components of the Computer Group. This is particularly applicable to the analog functions of the PPC. The purpose of this group test setup is to simulate the operation of the PPC unit in the aircraft. The Computer group is listed as follows:

a. Navigational Computer, Position, 60301 (PPC).

b. Navigational Computer CP-340 or 51863 (Course Computer).

c. Control Indicator, 60932.

d. Ground Speed-Drift Angle Indicator ID-617.

e. Bearing Distance, Heading Indicator ID-331C. This indicator is used in conjunction with, but is not part of Radar Set AN/APN-105.

Indicators used on Depot Test Station 7 provide direct readout of functions performed in the PPC and Course Computer. The majority of functions in the Course Computer are actuated by amplifiers which are located in the PPC (analog card subassemblies). All units used in the computer group should be in proper working order to insure a reliable PPC unit test.

9-6. USE OF TABLE 9-1. Table 9-1 is an operational test table. This table consists of three columns: TEST, TEST PROCEDURE, and FAULT LOCATION. The TEST column lists the tests and sequence in which they are to be performed. The TEST PROCEDURE column refers the reader to the text and tables where the test procedure is found. The FAULT LOCATION column refers the reader to the appropriate paragraphs or tables in Section III which indicate the procedures to be followed should a malfunction occur during a particular test.

Table 9-1. PPC Unit Tests

Test	Test Procedure in Section IX	Fault Location in Section III
Roll Pitch Resolution Test	Paragraph 9-9	Table 3-27
Heading Resolution Test	Paragraph 9-11	Table 3-28
Wind Memory Test	Paragraph 9-13	Table 3-29
Slewing Test	Paragraph 9-15	Table 3-30
Secant Latitude Test	Paragraph 9-17	Table 3-31
Course Angle and Distance-To-Go Test	Paragraph 9-19	Table 3-32
Drift Angle Test	Paragraph 9-22	Table 3-33
Dynamic Heading Test	Paragraph 9-24	Table 3-34
Fix Storage Test	Paragraph 9-26	Table 3-35
Vector Problem Test	Paragraph 9-28	Table 3-36

9-7. PPC PRELIMINARY TEST SETUP. Connect the PPC to the Course Computer and auxiliary test equipment as shown in Figure 9-2. Turn on all external power supplies, high voltages first, and allow a three-minute warm up. Check the panel lamps on the Control Indicator 60932 by turning on the C-1932 LIGHTS switch located on the FLIGHT INSTRUMENTS PANEL. To initiate any one test depress the START button on the SG-226. Depress RESET button on ID-616 to clear count display on counter before proceeding with next test.

9-8. TEST PROCEDURES.

9-9. ROLL PITCH RESOLUTION TEST. This test checks the Roll-Pitch Resolution circuits of the PPC plus the Roll-Pitch converters. The inputs to the PPC and the polarities associated with them are provided by the SG-226. The outputs of the SG-226 $\frac{\text{ALONG}}{\omega XA}$, $\frac{\text{ACROSS}}{\omega YA}$, and $\frac{\text{VERT}}{\omega ZA}$ simulate the Vxa, Vya, Vza, inputs to the PPC from the Tracker Unit.

9-10. ROLL PITCH RESOLUTION TEST PROCEDURES.

a. Set CALIBRATION switches located on Gyro Simulator panel as follows:

PT1	PT2	PT7	PT8 through PT12
OFF	ON	ON	OFF

This calibration will be equal to a binary gating arrangement of 0.000 111 100 000. Set OPERATE switch on Control Indicator to "NORM".

b. Disconnect P1308 from PPC. Rotate Pitch Dial on Gyro Simulator panel until a zero pitch (all PITCH lights on) binary representation is displayed on the DECODER LIGHTS PANEL. A pitch angle of 0° ±1° should be displayed on the Precise Angle Indicator.

c. Rotate Roll dial slowly until a zero roll (all ROLL lights on) binary representation is displayed on the Decoder Lights. A roll angle of 180° ±1° should be displayed on the Precise Angle Indicator.

d. Increase ROLL ANGLE from zero by slowly turning Roll Dial clockwise and observe the following:

ROLL Lights	Check proper progression of binary output until a maximum output is reached (all lights off). Check during this time for positive polarity (first lamp marked "P" off).
MEMORY Lamp on Control Indicator	Lamp shall light when Precise Angle Indicator reaches 207° ±2°.

e. Decrease Roll angle by turning Roll Dial counterclockwise and observe the following:

ROLL Lights	Check proper progression of binary output until a minimum output is reached (all lights off). Check during this time for negative polarity (first lamp marked "P" on).
MEMORY Lamp on Control Indicator	Lamp shall light when Precise Angle Indicator reaches 153° ±2°.

f. Return ROLL ANGLE to zero (all lights on).

g. Repeat steps c, d, and e inserting Pitch for Roll. The parameters for the position for Memory Lamp lights are as follows:

Step d. 27° ±2°.

Step e. 333° ±2°.

h. Return PITCH ANGLE to zero (all PITCH lights on). Replace P1308 to PPC.

i. On SG-226 place TEST PERIOD switch to "5.8 SEC". Set SIMULATED MOTION switches in the following positions: "FORWARD", "RIGHT" and "DOWN". Connect WX, WY and WZ inputs.

j. On ID-616 place NO. OF DECADES switch to "3". Place CHECK switch in the following positions and read parameters listed below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
1	+Vx = 18,750 ± 9	−Vx = 0.0 + 2
2	+Vy = 4,688 ± 4	−Vy = 0.0 + 2

k. Turn Pitch Dial until PITCH ANGLE equals max "POS" (1.111111). PITCH display should be as follows:

P	2 through 7
OFF	OFF

l. Turn Roll Dial until ROLL ANGLE equals max "POS" (1.111111). ROLL display should be as follows:

P	2 through 7
OFF	OFF

m. As in step j (No. OF DECADES switch to "3"), adjust CHECK switch to read parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
1	+Vx = 21,549 ± 10	−Vx = 1,172 ± 2
2	+Vy = 4,688 ± 4	−Vy = 2,025 ± 2

n. Turn Pitch Dial until PITCH ANGLE equals max "NEG" (0.111111). PITCH display should be as follows:

P	*2 through 7*
ON	OFF

o. Turn Roll Dial until ROLL ANGLE equals max "POS" (1.111111). ROLL display should be as follows:

P	*2 through 7*
OFF	OFF

p. As in step j., adjust CHECK switch to read parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
1	+Vx = 18,750 ± 9	−Vx = 3,971 ± 4
2	+Vy = 4,688 ± 4	−Vy = 2,025 ± 2

q. Turn Pitch Dial until PITCH ANGLE equals max "Pos" (1.111111). PITCH display should be as follows:

P	*2 through 7*
OFF	OFF

d. Set TRUE AIR SPEED Dial to maximum frequency. Use external probe at J1318 pin JJ on dual channel to count TAS oscillator output for 5.8 sec. Count shall be 24,795 ± 500. Set TRUE AIR SPEED Dial to 7.5 and adjust R4154 on card subassembly 2126-1 for 18,563 ± 50.

e. Set TRUE AIR SPEED Dial to half-way point. Use external probe on dual channel to count TAS oscillator output for 5.8 sec. Count shall be 12,398 ± 250. Disconnect Wy and Wz inputs, and connect Wx into Wz output to give 80,000 pulses continuous.

f. Set Heading Angle Dial to "0°" (QUAD I). Decoder Lights Panel displav should be as follows:

QUAD

1 2 3

OFF ON ON

HEADING-SINE

0 through 8

ON

HEADING-SINE

0 1 through 8

OFF ON

g. Set TRUE AIR SPEED Dial to "600". (9,900p/5.8 sec).

h. Set OPERATE switch on Control Indicator to "NORM."

i. Place CHECK switch in the following position and read parameters listed below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
4	Vn = 10,000 ± 10	Vs = 0 + 2

j. Depress START button on SG-226. After approximately 3 seconds set OPERATE switch on Control Indicator to "SIL". Counts registered on ID-616 are not applicable.

k. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
4	Vn = 10,000	Vs = 0

Values of Vn, Vs, are approximate, and be equal to Vn − Vs + 10,000 ± 125.

l. Set Heading Angle Dial to "86°" (QUAD I). Decoder Lights Panel display should be as follows:

QUAD

1 2 3

OFF ON ON

HEADING-SINE

0 1 through 8

ON OFF

HEADING-COSINE

0 through 3 4 5 through 8

ON OFF ON

m. Set TRUE AIR SPEED Dial to "960°". (15,840p/5.8 sec) and OPERATE switch on Control Indicator to "NORM".

n. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 9.961 ± 4	Vw = 0 + 2
4	Vn = 625 ± 2	Vs = 0 + 2

o. Repeat step j.

p. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 15,790	Vw = 5,833
4	Vn = 875	Vs = 250

Values of Vn, Vs, Ve and Vw are approximate, difference must be equal to:

Ve — Vw = 9,961 ± 170

Vn — Vs = 625 ± 85

q. Set Heading Angle Dial to "94°" (QUAD II). Decoder Lights Panel display should be as follows:

QUAD

1 2 3

ON ON OFF

HEADING-SINE

0 through 3 4 5 through 8

ON OFF ON

HEADING-COSINE

0 1 through 8

ON OFF

r. Set TRUE AIR SPEED Dial to "240" (3960p/5.8 sec) and OPERATE switch on Control Indicator to "NORM".

s. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 9,961 ± 4	Vw = 0 + 2
4	Vn = 0 + 2	Vs = 625 ± 2

t. Repeat step j.

u. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 9,961 ± 150	Vw = 0 + 2
4	Vn = 0 + 2	Vs = 625 ± 100

v. Set Heading Angle Dial to "180°" (QUAD II). Decoder Lights Panel display should be as follows:

QUAD

1	*2*	*3*
ON	OFF	ON

HEADING-SINE

0	*1 through 8*
OFF	ON

HEADING-COSINE

0 through 8

ON

w. Set TRUE AIR SPEED Dial to "240" (3960p/5.8 sec) and set OPERATE switch on Control Indicator to "NORM".

x. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
4	Vn = 0 + 2	Vs = 10,000 ± 5

y. Repeat step j.

z. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
4	Vn = 0 + 2	Vs = 10,000 ± 170

aa. Set Heading Angle Dial to "270°" (QUAD III). Decoder Lights Panel display should be as follows:

QUAD

1	*2*	*3*
ON	OFF	OFF

HEADING-SINE

0	*1 through 8*
OFF	ON

ON

HEADING-COSINE

0 through 8

ON

bb. Set TRUE AIR SPEED Dial to "960" (15,840p/5.8 sec) and OPERATE switch on Control Indicator to "NORM".

cc. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 0 + 2	Vw = 10,000 ± 5

dd. Repeat step j.

ee. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 5,833	Vw = 15,790

Values of Vw and Ve are approximate, and difference must be equal to Vw — Ve = 10,000 ± 170.

ff. Set Heading Angle Dial to "315°" (QUAD IV). Decoder Lights Panel display should be as follows:

QUAD

1	*2*	*3*
OFF	ON	OFF

HEADING-SINE

0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
ON	OFF	ON	OFF	OFF	ON	OFF	ON	OFF

HEADING-COSINE

0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
ON	OFF	ON	OFF	OFF	ON	OFF	ON	OFF

gg. Set TRUE AIR SPEED Dial to "960" (15,840p/5.8 sec) and OPERATE switch on Control Indicator to "NORM".

hh. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 0 + 2	Vw = 7,070 ± 3
4	Vn = 7,070 ± 3	Vs = 0 + 2

ii. Repeat step j.

jj. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
3	Ve = 4,095	Vw = 11,215
4	Vn = 11,215	Vs = 4,095

Values of Vn, Vs, Ve and Vw are approximate, and difference must be equal to Vw — Ve and Vn — Vs = 7,070 ± 120.

kk. On SG-226 place TEST PERIOD switch to "CONT" and depress START button.

ll. Repeat step j.

mm. Set TRUE AIR SPEED LIMIT switch to +44v. Count on ID-616 stops at positions 3 and 4. Ground speed goes to 0 ± 2 knots.

nn. On SG-226 place TEST PERIOD switch to "5.8 SEC". Count on TAS Input should be set at 6666 ± 100.

oo. Set Heading Angle Dial to "0°" (QUAD I). ROLL and PITCH ANGLE to "0°".

pp. Set CALIBRATION switches located on Gyro Simulator panel as follows:

PT1	*PT2*	*PT7*	*PT8 through PT12*
ON	OFF	OFF	OFF

qq. Adjust CHECK switch to read the parameters below:

Position of CHECK Switch	*CHANNEL NO. 1*	*CHANNEL NO. 2*
4	Vn = 10,000 ± 10	Vs = 0 + 2

Switch to "SEA" on Control Indicator after 3 seconds, and check counts:

Vn = 10,000 ± 10 Vs = 0 + 2

Switch HEADING ANGLE Dial to "180°" (QUAD II), and check counts:

Vn = 0 + 2 Vs = 10,000 ± 10

Switch to "SIL" on Control Indicator, and check counts:

Vn = 3,333 Vs = 6,666

Vn + Vs = 10,000 ± 170

rr. On SG-226 place TEST PERIOD switch to "5.8 SEC". Connect SIMULATED MOTION connectors as follows:

Wx = 160,000, Wy = 40,000 and Wz = 80,000 pulses.

9-15. SLEWING TEST. This test checks the slewing circuits on card subassemblies for latitude and longitude slewing. Slewing is actuated by and read from Control Indicator 60932.

9-16. SLEWING TEST PROCEDURES. For a test of present position slewing, perform the following:

a. Switch to "PRES."

b. Set Control Switch to "FIX."

c. Turn latitude slew switch *up* for slow and then fast slewing. The latitude counter shall indicate increasing north for both slow and fast slewing.

d. Turn latitude switch *down* for slow and then fast slewing. The latitude counter shall indicate increasing south for both slow and fast slewing.

e. Adjust the latitude indicator setting at N15° 15′.

f. Turn longitude slew switch *up* for slow and then fast slewing. The longitude counter shall indicate increasing east for both slow and fast slewing.

g. Turn longitude slew switch *down* for slow and then fast slewing. The longitude counter shall indicate increasing west for both slow and fast slewing.

h. Adjust the longitude indicator setting at E15° 15′ and perform destination A slewing test as follows:

i. Switch to "DEST A."

j. Set Control Switch to "NORM".

k. Repeat the latitude slewing procedures preceding, for slow and fast slewing, i.e., when the latitude slew switch is *up,* a reading for increasing north shall be indicated. And when the latitude slew switch is *down,* a reading for increasing south shall be indicated.

l. Before testing longitude, adjust latitude indicator setting at S15° 15′.

m. Repeat the longitude slewing procedures preceding, for slow and fast slewing: (When the longitude slew switch is *up,* a reading for increasing east shall be indicated. And when the longitude slew switch is *down,* a reading for increasing west shall be indicated).

n. Adjust the longitude indicator setting at W15° 15′, switch to "DEST B", and perform destination B latitude slewing in the same manner as destination A with one exception: before testing destination B longitude, adjust the latitude indicator setting at S5° 15′.

o. After slew-testing for destination B longitude, adjust the longitude indicator setting a W5° 15′ and perform the following repeatability test:

p. Switch to "PRES." The latitude counter shall read N° 15′ ±0.5′.

q. Switch to "DEST A". The latitude counter shall read S15° 15′ ±0.5′. The longitude counter shall read W15° 15′ ±0.5′.

r. Switch to "DEST B". The latitude counter shall read S5° 15′ ±0.5′. The longitude counter shall read W5° 15′ ±0.5′.

s. Perform the latitude converter slewing test as follows, switching to "PRES" and to "FIX". Connect P1318 to PPC.

t. Slew latitude present position from 0° to north 75° checking the cosine latitude lights for the proper progression of binary count.

u. Slew latitude present position from north 75° to 0°, checking the sine latitude lights for the proper progression of binary count.

9-17. SECANT LATITUDE TEST. This test checks the Secant Latitude computation for the longitude output. The test also checks the latitude converter in the Course Computer, since it provides the latitude angle information used in the Secant Latitude computation.

9-18. SECANT LATITUDE TEST PROCEDURES.

a. Turn ROLL and PITCH ANGLE Dials to max "POS" (1.111111). The Decoder Lights Panel "ROLL" and "PITCH" lamps shall be off.

b. Connect plug P1318 to PPC.

c. Set OPERATE switch on Control Indicator to "FIX".

d. Set CALIBRATION switches located on Gyro Simulator panel as follows:

PT1	*PT2*	*PT7*	*PT8 through PT12*
OFF	ON	ON	OFF

e. Slew Latitude switch to 00° 00′; then slow slew Latitude switch North until display on "LATITUDE-COSINE" lights = 1.00000000 and "LATITUDE-SINE" lights = 0.00000000. This display should occur between S00° 03.5′ and N00° 10′.

f. Slow slew Latitude switch South until display on "LATITUDE COSINE" lights = 0.00000000 and "LATITUDE-SINE" lights = 1.00000000. This display should occur between N00° and S00° 03.5′.

g. Set Heading Angle Dial to "90°" (QUAD II). Decoder Lights Panel display should be as follows:

QUAD

1	*2*	*3*
ON	OFF	ON

HEADING-SINE

0 through 8

ON

HEADING-COSINE

0	*1 through 8*
OFF	ON

h. On SG-226 place TEST PERIOD switch to "5.8 SEC". Set SIMULATED MOTION switches in the following positions: "FORWARD", "RIGHT" and "DOWN".

i. Place CHECK switch to "5". Count on CHANNEL NO. 1 for $\frac{\text{Ve-w Sec Lat}}{8}$ equals 2547 ± 3.

j. Set Heading Angle Dial to "180°" (QUAD III). Decoder Lights Panel display should be as follows:

QUAD

1	*2*	*3*
ON	OFF	OFF

HEADING-SINE

0 through 8

ON

HEADING-COSINE

0	*1 through 8*
OFF	ON

k. Repeat step h, placing CHECK switch to "5". Count on CHANNEL NO 1 for $\frac{\text{Ve-w Sec Lat}}{8}$ equals 333 ± 3.

l. Slew LATITUDE switch to "S 60° 00′". Adjust switch if necessary until display on "LATITUDE-SINE" = 0.1000000 and "LATITUDE COSINE" = 0.11011110. Latitude Indicator should read "S60° 00′ ± 10".

m. Repeat step h. Place CHECK switch to "5". Count on CHANNEL NO. 1 for Ve-w Sec Lat equals 667 ± 6. (Repeat until correct count appears and holds).

n. Slew LATITUDE switch to "N 60° 00′". Adjust switch if necessary until display on "LATITUDE-SINE" = 0.11011110 and "LATITUDE-COSINE" = 0.10000000. LATITUDE Indicator should read "N 60° 00′ ± 10′".

o. Set Heading Angle Dial to "270°" (QUAD III). Decoder Lights Panel display should be as follows:

QUAD			*HEADING-SINE*	*HEADING-COSINE*	
1	*2*	*3*	*0*	*1 thru 8*	*0 thru 8*
ON	OFF	OFF	OFF	ON	ON

p. Repeat step h. Place CHECK switch to "5". Count on CHANNEL NO. 1 for $\frac{\text{Ve-w Sec Lat}}{8}$ equals 5094 ±6.

SECTION XII
DIFFERENCE DATA SHEETS

12–1. GENERAL. The overhaul instructions presented in the preceding sections of this manual apply except for specific differences noted by the applicable difference data sheet.

12–2. SCOPE. The difference data sheets contained in this section list by unit, serial number, and section subject matter, data which differ from those given in preceding sections, and which are necessary to the performance of maintenance procedures.

12–3. ILLUSTRATIONS. Where necessary for clarity and for maintenance reference, difference data sheets are followed by illustrations showing detailed differences. Change symbols (i.e., ≪G-1≫) are included in the illustrations to localize changes, to indicate their serial number effectivity, and to cross reference them back to the applicable difference data sheet.

12–4. DATA SHEET SUMMARY. The following model differences are noted in Section XII:

Unit		*Effective Serial No's.*	*Change Symbol*
Card Subassembly	2101	641–667, 782 and at 918	≪EFF W≫
	2101–1	At 981	≪EFF AC-1≫
	2102	At 981	≪EFF AD2≫
	2103	At 661	≪EFF W≫
	2104	At 621	≪EFF V≫
	2105	At 904	≪EFF AC-1≫
	2107/17	At 1161	≪EFF W≫
	2107/17	At 1997	≪EFF BC-2≫
	2109	At 1006	≪EFF AD-2≫
	2110/18	At 1401	≪EFF W≫
	2110/18	At 1412	≪EFF Z≫
	2111	621–667, and at 741	≪EFF V≫
	2111	At 778	≪EFF Z≫
	2112/19	At 1412	≪EFF Z≫
	2113-1	At 467-486, 601-667, and at 721	≪EFF S≫
	2113–1	At 1034	≪EFF BC-1≫
	2116	At 896	≪EFF AC-1≫
	2122–2	At 926	≪EFF AC-1≫
	2123-1	At 467-486, 601-667, and at 721	≪EFF S≫
	2123–1	At 971	≪EFF AD-2≫
	2124	At 772	≪EFF Z≫
	2126-1	At 928	≪EFF AC-2≫
	2126–1	At 966	≪EFF AD-1≫
	2140-1	At 930	≪EFF AC-2≫

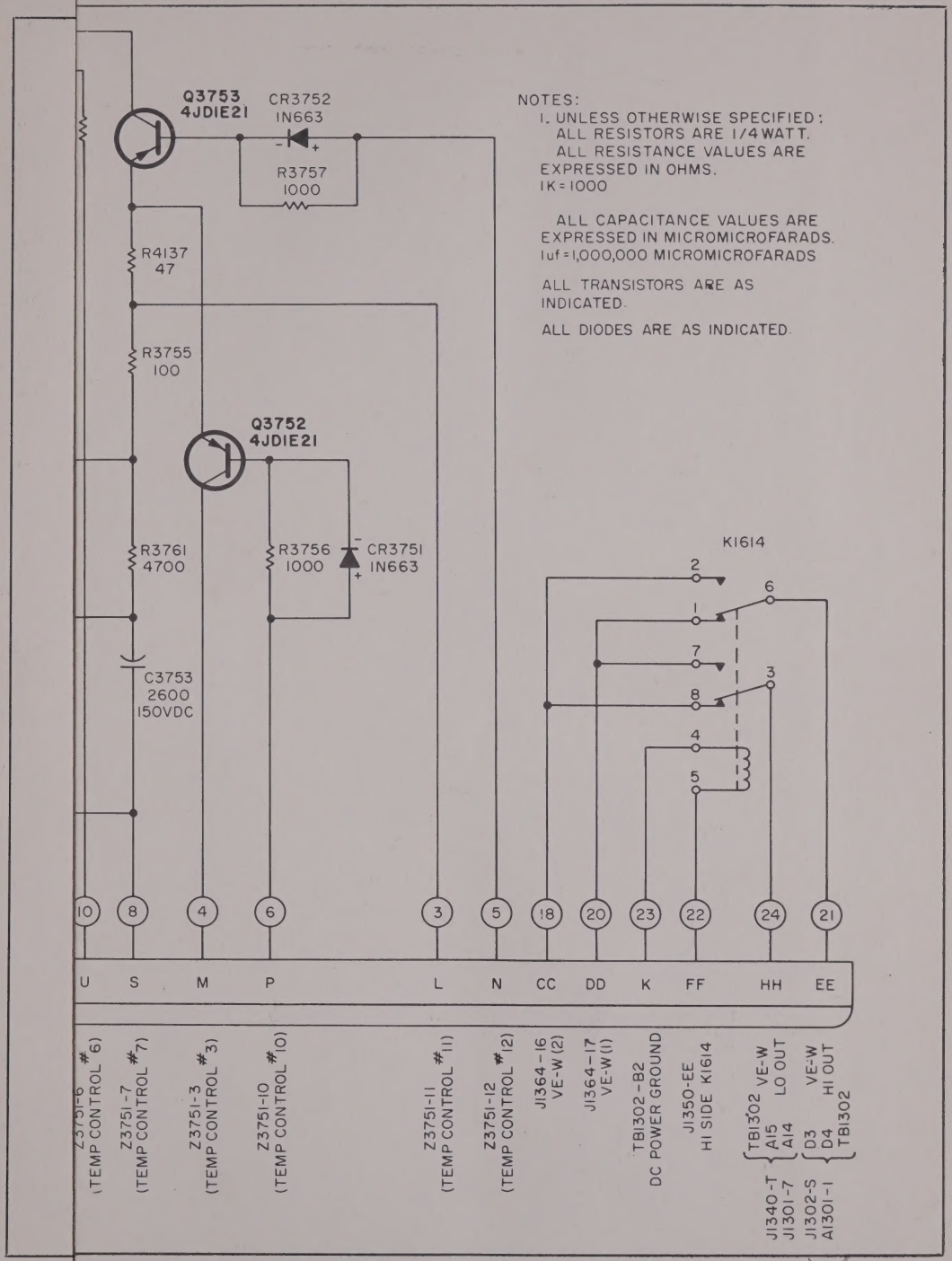


Figure 8-26. Card Subassembly 2126-1, Schematic Diagram

page 8-15-4
22 mar 63 missing

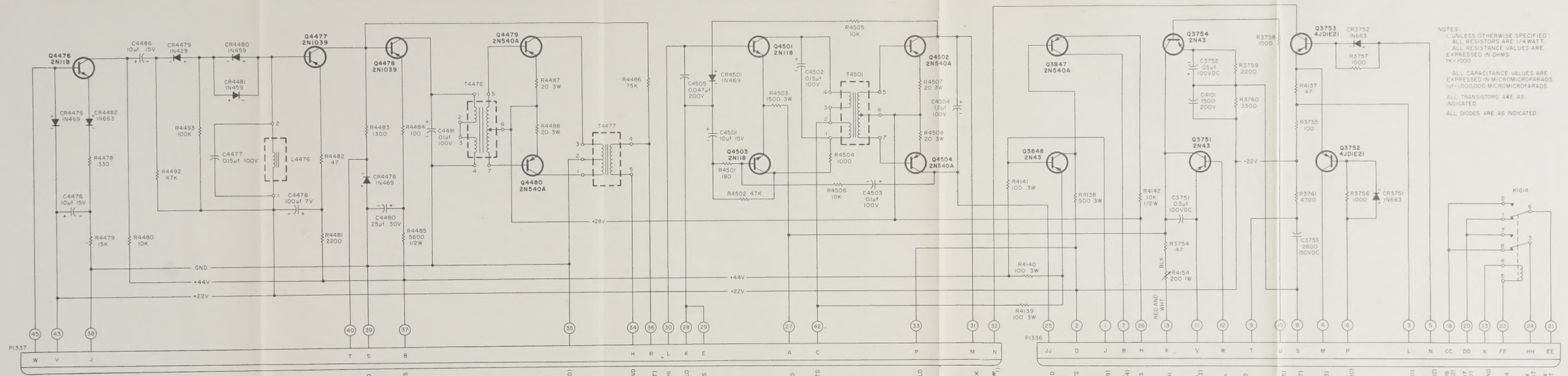
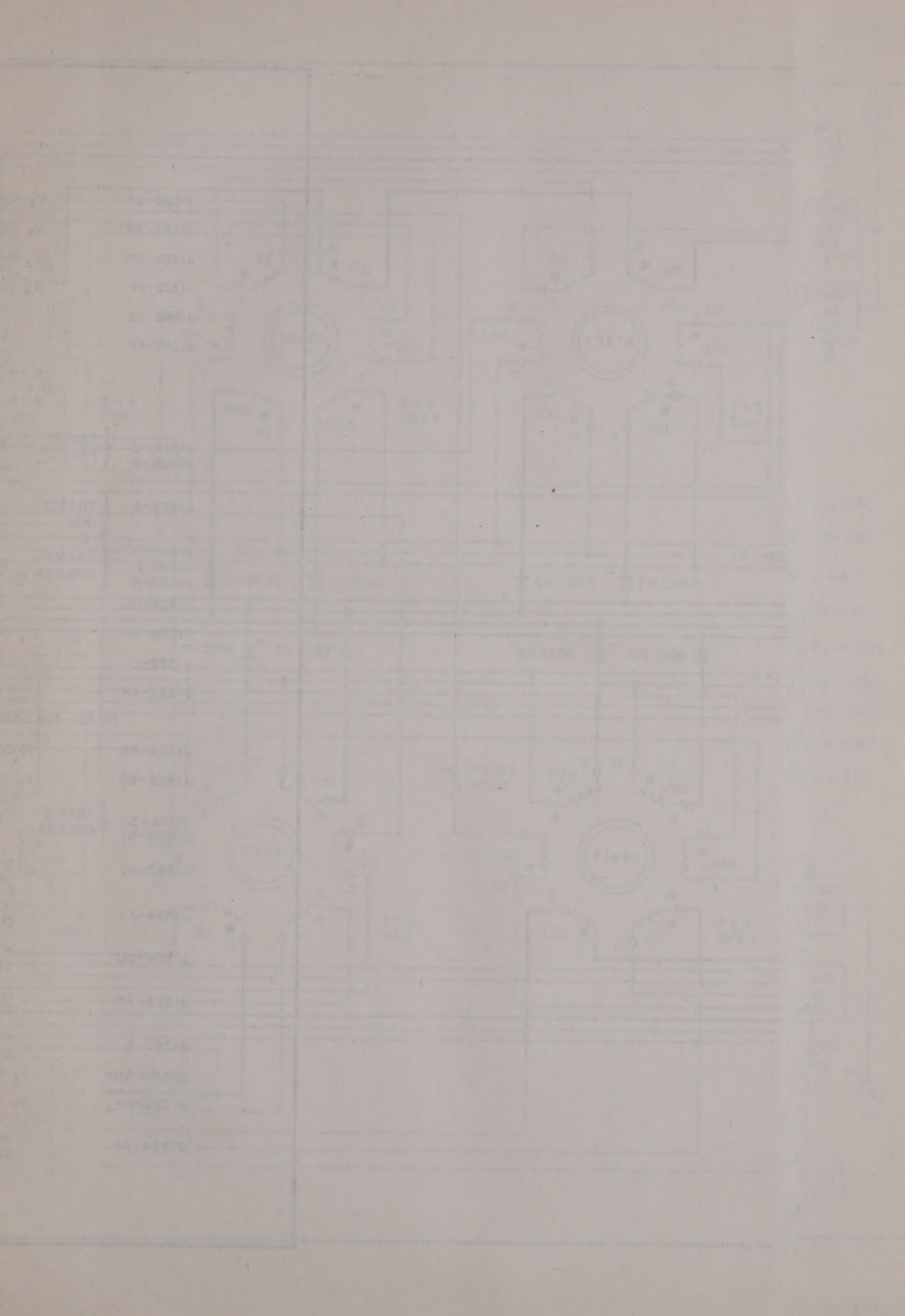


Figure 8-26. Card Subassembly 2126-1, Schematic Diagram



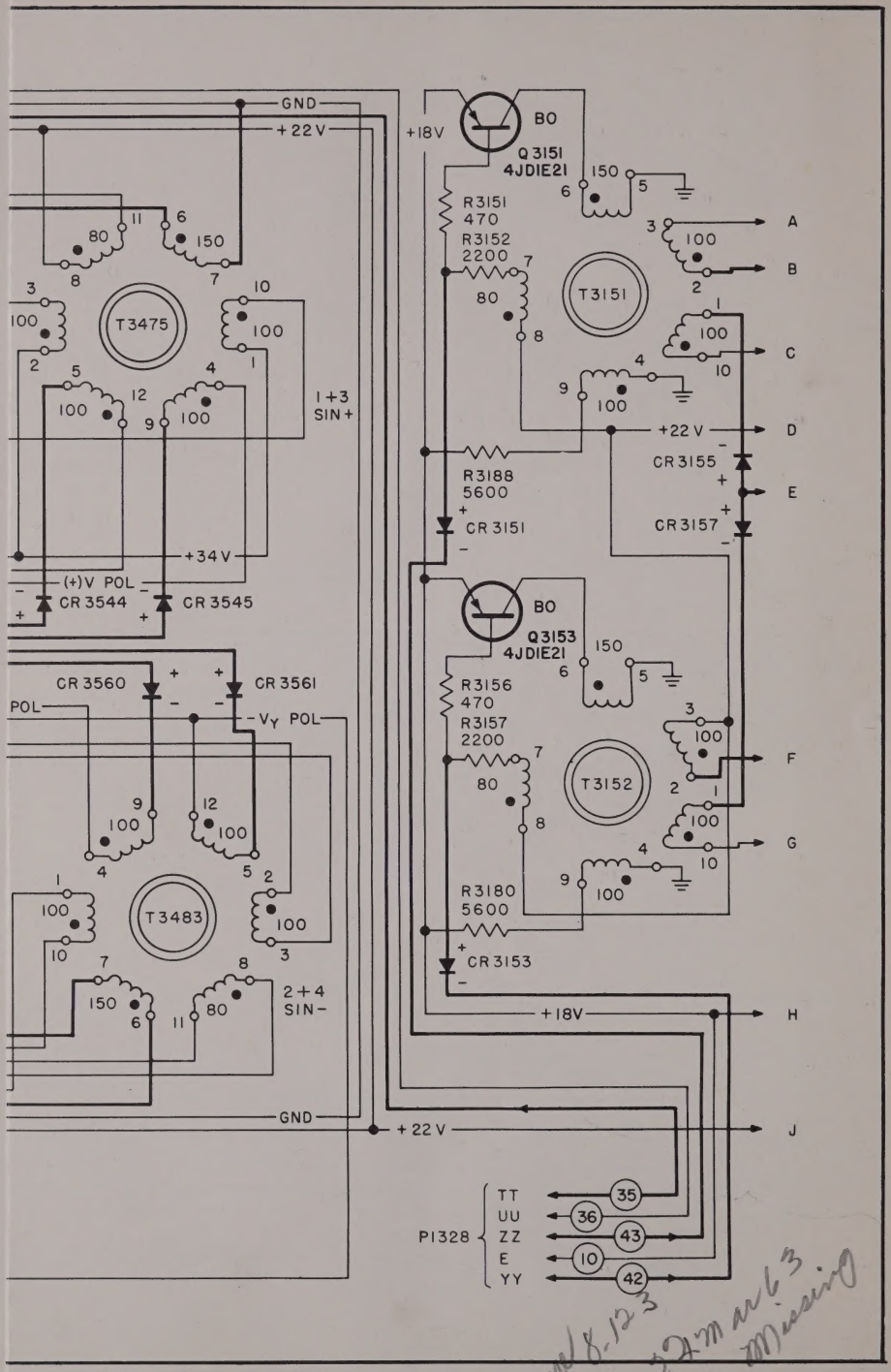
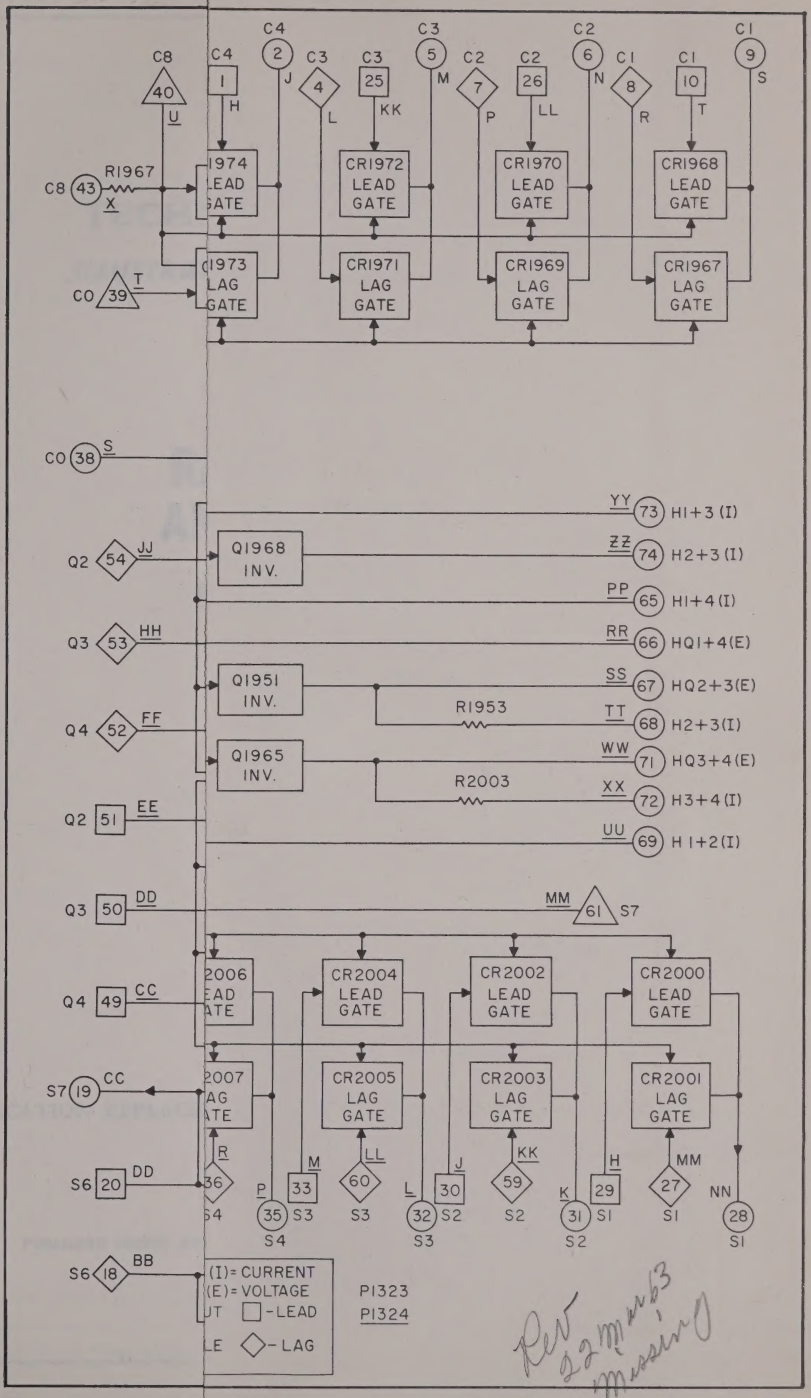


Figure 8-14. Card Subassembly 2109, Schematic Diagram (Sheet 1 of 2)



Card Subassembly 2116, Logic Diagram

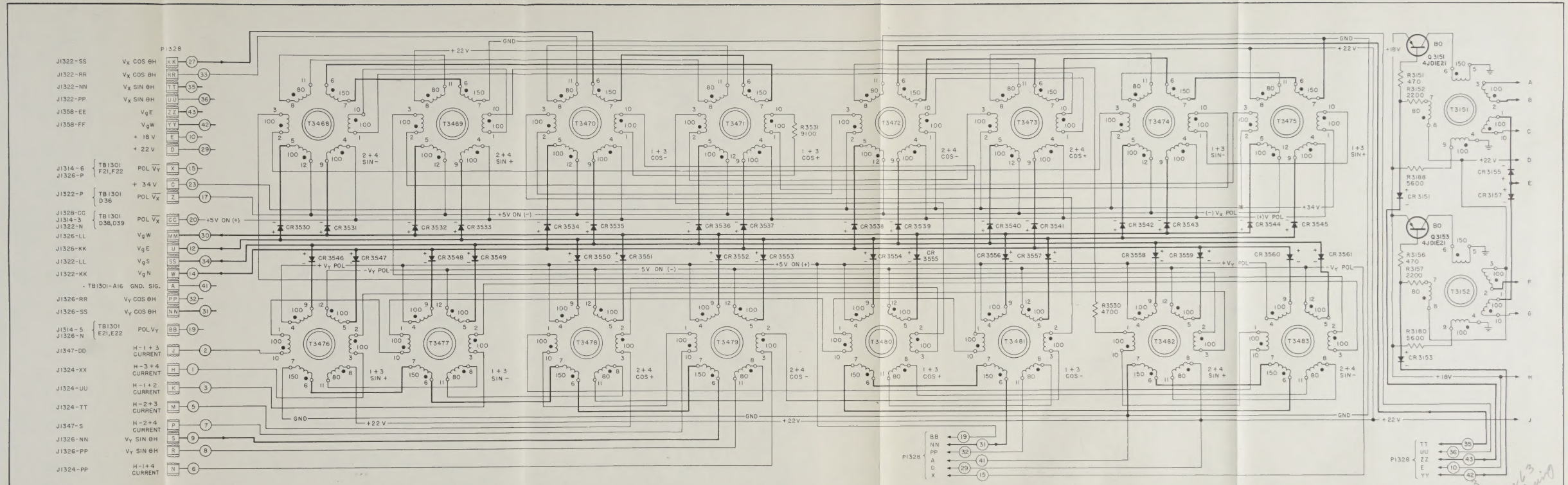


Figure 8-14. Card Subassembly 2109, Schematic Diagram (Sheet 1 of 2)

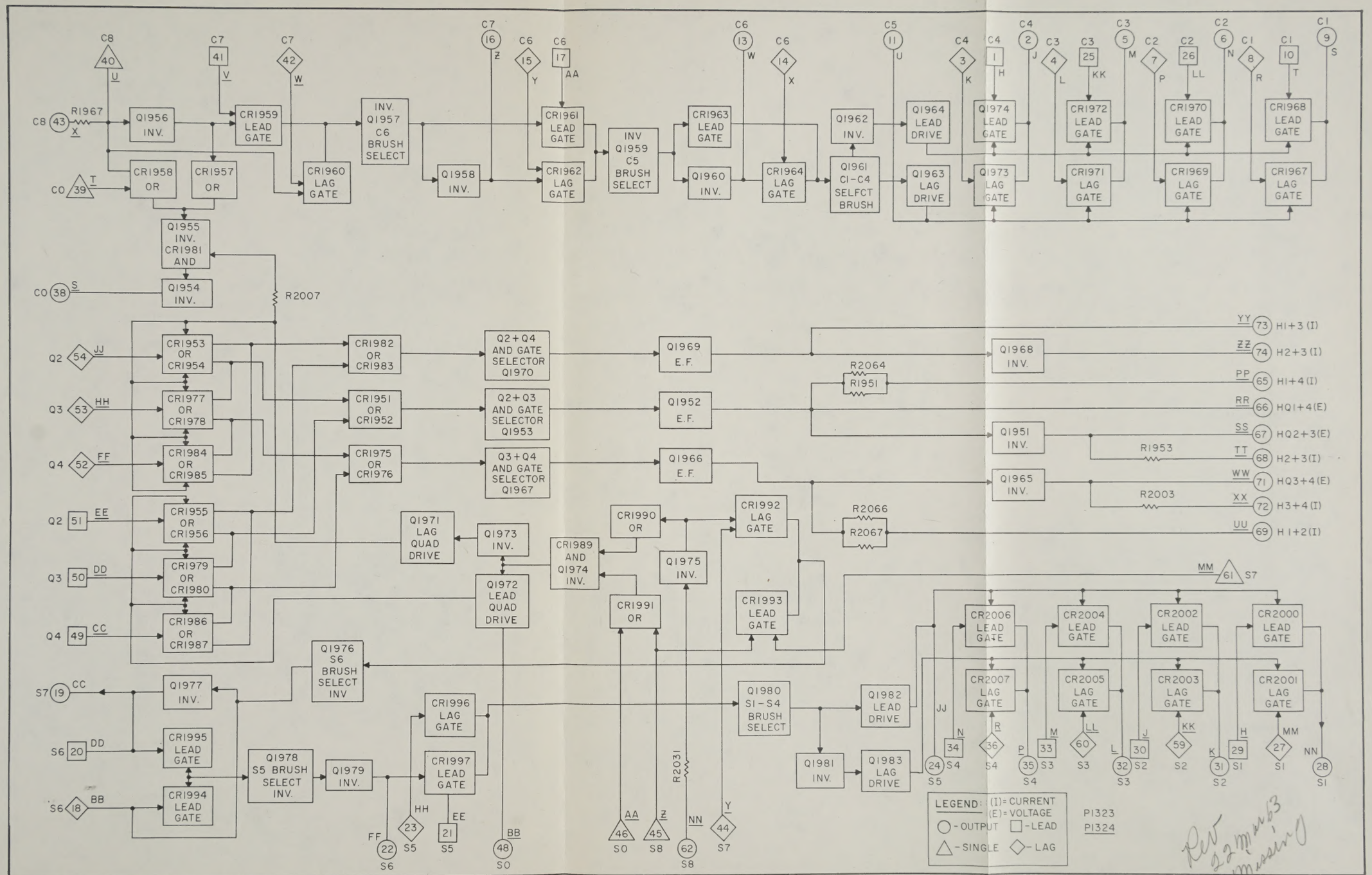


Figure 3-57. Card Subassembly 2116, Logic Diagram

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T.O. 12P6-2APS42-24

TECHNICAL MANUAL

ILLUSTRATED PARTS BREAKDOWN

RADAR SET AN/APS-42A

PART NO. 551600

(BENDIX-PACIFIC)
(RCA)

AF04(607)3299

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78947	Ucinite Co., Newtonville, Mass.
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80089	RBM Mfg. Co., Logansport, Ind.
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80223	United Transformer Co., New York, N. Y.
80411	Acro Division of Robertshaw-Fulton Controls Co., Columbus, Ohio

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82838	American Electronics Inc., Electro-Mechanical Division, Los Angeles, Calif.
83259	Parker Seal Co., Culver City, Calif.
83764	Lundey Associates, Waltham, Mass.
84971	TA Mfg. Corp., Los Angeles, Calif.
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91146	Cannon Electric Co., Eastern Division, Salem, Mass.
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93289	Air Marine Motors, Inc., Amityville, Long Island, N. Y.
93323	Hycor Division of International Resistance Co., Sylmar, Calif.
94660	Perkin Engineering Corp., El Segundo, Calif.
95018	General Electric Co., Transformer Division of Apparatus Group, Pittsfield, Mass.
95294	RCA Victor Division of Radio Corp. of America, Hollywood, Calif.
97954	U S Components, Inc., New York, N. Y.
98388	Accurate Sales Co., Inc., Culver City, Calif.

Synchronizer SN-59A/APS-42

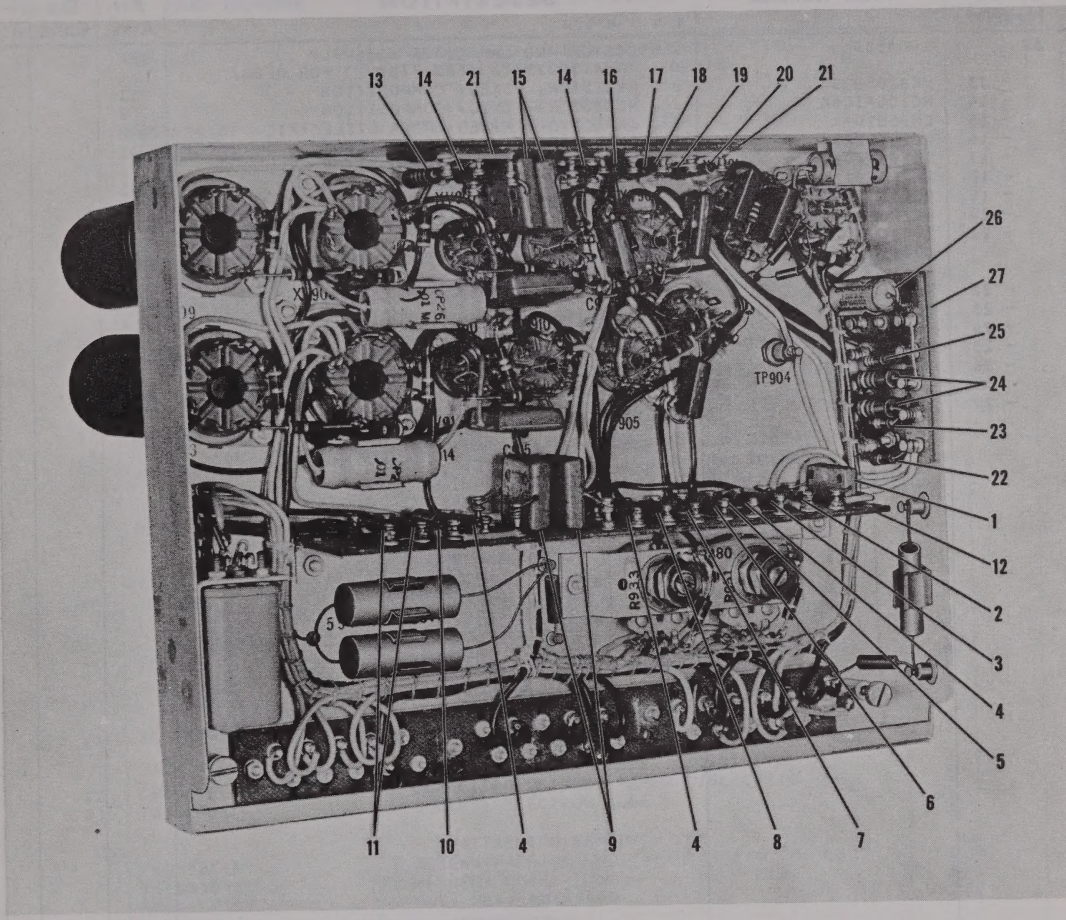

Figure 22. Sweep Generator Resistor and Capacitor Assemblies

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
22	NO NUMBER	RESISTOR AND CAPACITOR ASSEMBLIES, SWEEP GENERATOR	REF		
	1003560	• RESISTOR AND CAPACITOR ASSEMBLY /NHA 1003557/ /SEE FIG. 21 FOR REQD/	REF		
- 1	CM20B471K	• • CAPACITOR, FIXED, MICA DIELECTRIC	1		
- 2	RC20GF822K	• • RESISTOR, FIXED, COMPOSITION	1		
- 3	RC20GF683J	• • RESISTOR, FIXED, COMPOSITION	1		
- 4	RC20GF104K	• • RESISTOR, FIXED, COMPOSITION	3		
- 5	RC20GF472J	• • RESISTOR, FIXED, COMPOSITION	1		
- 6	RC20GF223K	• • RESISTOR, FIXED, COMPOSITION	1		
- 7	RC20GF103K	• • RESISTOR, FIXED, COMPOSITION	1		
- 8	RC20GF333K	• • RESISTOR, FIXED, COMPOSITION	1		
- 9	CM35B103K	• • CAPACITOR, FIXED, MICA DIELECTRIC	2		
- 10	RC32GF333K	• • RESISTOR, FIXED, COMPOSITION	1		
- 11	RC30GF511J	• • RESISTOR, FIXED, COMPOSITION	2		
- 12	1003489	• • BOARD, TERMINAL	1		

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
22	1003559	• RESISTOR AND CAPACITOR ASSEMBLY /NHA 1003557/ /SEE FIG. 21 FOR REQD/	REF		
- 13	RC32GF333K	• • RESISTOR, FIXED, COMPOSITION	1		
- 14	RC20GF104K	• • RESISTOR, FIXED, COMPOSITION	2		
- 15	CM35B103K	• • CAPACITOR, FIXED, MICA DIELECTRIC	2		
- 16	RC20GF223K	• • RESISTOR, FIXED, COMPOSITION	1		
- 17	RC20GF103K	• • RESISTOR, FIXED, COMPOSITION	1		
- 18	RC20GF333K	• • RESISTOR, FIXED, COMPOSITION	1		
- 19	RC20GF183K	• • RESISTOR, FIXED, COMPOSITION	1		
- 20	RC20GF474K	• • RESISTOR, FIXED, COMPOSITION	1		
- 21	1003488	• • BOARD, TERMINAL	1		
	1003561	• RESISTOR AND CAPACITOR ASSEMBLY /NHA 1003557/ /SEE FIG. 21 FOR REQD/	REF		
- 22	RC20GF474K	• • RESISTOR, FIXED, COMPOSITION	1		
- 23	RC20GF824K	• • RESISTOR, FIXED, COMPOSITION	1		
- 24	RC32GF393K	• • RESISTOR, FIXED, COMPOSITION	2		
- 25	RC20GF394K	• • RESISTOR, FIXED, COMPOSITION	1		
- 26	CP04A1EC104M	• • CAPACITOR, FIXED, PAPER DIELECTRIC, 0.1UF, PORM 20 PCT, 200V	1		
- 27	1003496	• • BOARD, TERMINAL	1		

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
36 - 12	TE5701	• TRANSFORMER, AUDIO FREQUENCY /78790/ /BENDIX-PACIFIC SPEC 560579/	1		
		/ATTACHING PARTS/			
	460702K1BY	• SCREW, MACHINE, NO. 6-32 BY 1/4 IN. LG	2		
	MS35338-41	• WASHER, LOCK	2		
		-----*-----			
- 13	123	• TERMINAL, LUG /79963//BENDIX-PACIFIC SPEC 406047, RCA SPEC 406047X/	2		
		/ATTACHING PARTS/			
	460702K1BY	• SCREW, MACHINE, NO. 6-32 BY 1/4 IN LG	1		
	MS35338-41	• WASHER, LOCK	1		
	461650K1BY	• NUT, PLAIN, HEX, NO. 6-32	1		
		-----*-----			
- 14	554803	• WIRING HARNESS	1		
- 15	14350CCT	• • CONNECTOR, PLUG, ELECTRICAL /71785/ /BENDIX-PACIFIC SPEC 560590-4/	1		
- 16	17	• GROMMET, RUBBER /81889/ /BENDIX-PACIFIC SPEC 411904/	1		
- 17	RC20GF821K	• RESISTOR, FIXED, COMPOSITION	1		
- 18	RC20GF681K	• RESISTOR, FIXED, COMPOSITION	1		
- 19	JLU1041	• RESISTOR, VARIABLE 100K, PORM 10 PCT, 2W /01121/ /BENDIX-PACIFIC SPEC 533228-104, RCA SPEC 533228X-104/	1		
	R1538	• RESISTOR, VARIABLE, 100K, PORM 10 PCT, 1W /71450/ /BENDIX-PACIFIC SPEC 560445-6/ /ALTERNATE FOR JLU1041/	1		
- 20	JLU5011	• RESISTOR, VARIABLE, 500 OHM, PORM 10 PCT, 2W /01121/ /BENDIX-PACIFIC SPEC 533228-501, RCA SPEC 533228X-501/	1		
	SW1460	• RESISTOR, VARIABLE, 500 OHM, PORM 20 PCT, 1W /71450/ /BENDIX-PACIFIC SPEC 560445-12/ /ALTERNATE FOR JLU5011/	1		
- 21	XFS2609	• CAPACITOR, FIXED, PAPER DIELECTRIC, 0.022UF, PORM 20 PCT, 100V /72928/ /BENDIX-PACIFIC SPEC 560483-17/	1		
- 22	CP04A1EC104V	• CAPACITOR, FIXED, PAPER DIELECTRIC	1		
- 23	TS102P01	• SOCKET, ELECTRON TUBE	1		
		/ATTACHING PARTS/			
	460656K1BY	• SCREW, MACHINE, NO. 4-40 BY 1/4 IN. LG	2		
	MS35338-40	• WASHER, LOCK	2		
	461646K1BY	• NUT, HEX, NO. 4-40	2		
		-----*-----			
- 24	TS103P01	• SOCKET, ELECTRON TUBE	2		
		/ATTACHING PARTS/			
	460656K1BY	• SCREW, MACHINE, NO. 4-40 BY 1/4 IN. LG	2		
	MS35338-40	• WASHER, LOCK	2		
	461646K1BY	• NUT, HEX, NO. 4-40	2		
		-----*-----			
- 25	RC20GF154K	• RESISTOR, FIXED, COMPOSITION	1		
- 26	MS16108-1A	• JACK, TIP, TEST POINT	1		
- 27	MS24055-1	• CONNECTOR, PLUG, ELECTRICAL	1		
- 28	1003687	• PANEL, STABILIZATION SERVO AMPLIFIER	1		
		/ATTACHING PARTS/			
	460656K1BY	• SCREW, MACHINE, NO. 4-40 BY 1/4 IN. LG	4		
	MS35338-40	• WASHER, LOCK	4		
		-----*-----			
- 29	554690	• CHASSIS, STABILIZATION SERVO AMPLIFIER	1		

Radar Set Control C-818A/APS-42

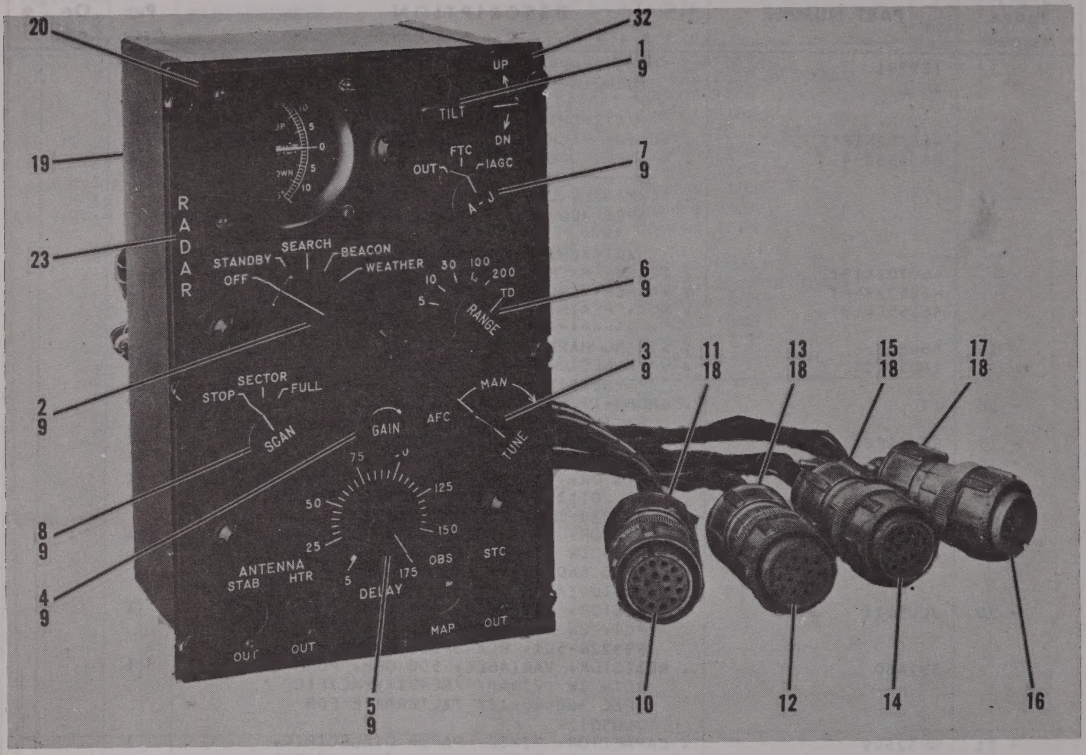

Figure 37. Radar Set Control, C-818A/APS-42 (Sheet 1 of 2)

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
37	553900	CONTROL, RADAR SET, C-818A/APS-42	1		
- 1	1015651	• KNOB, TILT SW /77068/	1	A-D	
	553902	• KNOB, TILT SW /95294/	1	E-G	
- 2	1015652	• KNOB, FUNCTION /77068/	1	A-D	
	553912	• KNOB, FUNCTION /95294/	1	E-G	
- 3	1015653	• KNOB, TUNE CONTROL /77068	1	A-D	
	553913	• KNOB, TUNE CONTROL /95294/	1	E-G	
- 4	1015654	• KNOB, GAIN CONTROL /77068/	1	A-D	
	553914	• KNOB, GAIN CONTROL /95294/	1	E-G	
- 5	1015655	• KNOB, SWEEP DELAY /77068/	1	A-D	
	553915	• KNOB, SWEEP DELAY /95294/	1	E-G	
- 6	1015656	• KNOB, RANGE /77068/	1	A-D	
	553916	• KNOB, RANGE /95294/	1	E-G	
- 7	1015657	• KNOB, ANTI-CLUTTER /77068/	1	A-D	
	553917	• KNOB, ANTI-CLUTTER /95294/	1	E-G	
- 8	1015658	• KNOB, SCAN /77068/	1	A-D	
	553918	• KNOB, SCAN /95294/	1	E-G	
- 9	AN565D6H3	• • SETSCREW	16		
	1004436	• CONNECTOR, PLUG, ELECTRICAL	1		

Radar Set Control C-818A/APS-42

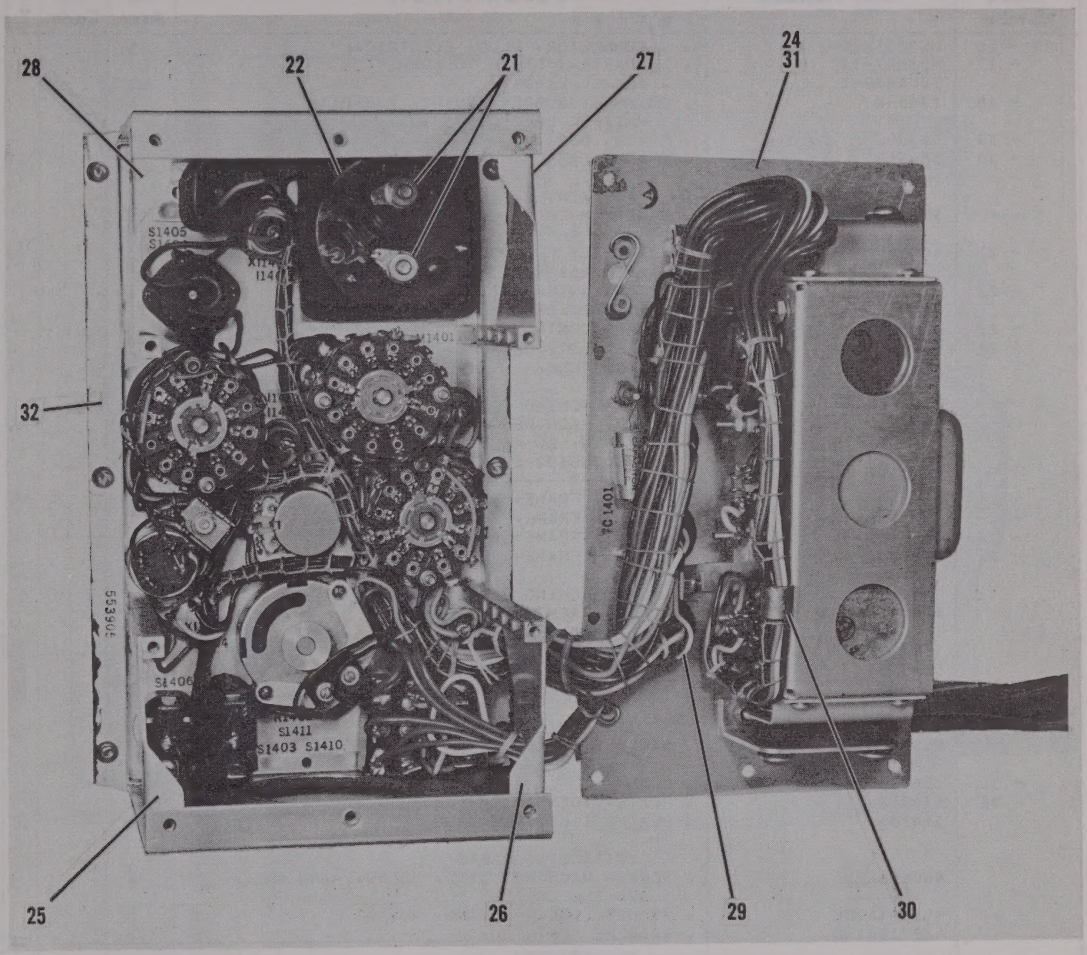

Figure 37. Radar Set Control, C-818A/APS-42 (Sheet 2 of 2)

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
37 - 10	MS3106B20-29SW	. . CONNECTOR, PLUG, ELECTRICAL	1		
- 11	MS3057-12	. . ADAPTER, CABLE TO CONNECTOR	1		
	1004436-1	. . DECAL /P1401/	1		
	1004437	. CONNECTOR, PLUG, ELECTRICAL	1		
- 12	MS3106B20-27S	. . CONNECTOR, PLUG, ELECTRICAL	1		
- 13	MS3057-12	. . ADAPTER, CABLE TO CONNECTOR	1		
	1004437-1	. . DECAL /P1402/	1		
	1004438	. CONNECTOR, PLUG, ELECTRICAL	1		
- 14	MS3106B20-29S	. . CONNECTOR, PLUG, ELECTRICAL	1		
- 15	MS3057-12	. . ADAPTER, CABLE TO CONNECTOR	1		
	1004438-1	. . DECAL /P1403/	1		
	1004439	. CONNECTOR, PLUG, ELECTRICAL	1		

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
37 - 16	MS3106B20-27PZ	• • CONNECTOR, PLUG, ELECTRICAL	1		
- 17	MS3057-12	• • ADAPTER, CABLE TO CONNECTOR	1		
	1004439-1	• • DECAL /P1404/	1		
- 18	2765-8	• GROMMET, RUBBER /00502/ /BENDIX-PACIFIC SPEC 560732-4/	4		
- 19	553901	• COVER, DUST	1		
- 20	554964	• SHADE, LAMP	1		
		/ATTACHING PARTS/			
	902187K1BB	• SCREW, MACHINE, RD LD -----*-----	4		
- 21	46-10	• TERMINAL, LUG /79963//BENDIX-PACIFIC SPEC 463046/	2		
- 22	8DW53AAY17	• METER, ANTENNA TILT /24446//BENDIX-PACIFIC SPEC 560696/	1		
- 23	553911	• PANEL, CONTROL	1		
- 24	554100	• PANEL ASSY, BACK PLATE /SEE FIG. 38 FOR BRKDN/	1		
		/ATTACHING PARTS/			
	562295	• SCREW, MACHINE, FL HD NO. 6-32 BY 3/8 IN. LG /ALTERED FROM AN507UB632-6/ -----*-----	10		
- 25	1003430-1L	• GUSSET, FRAME, LH	1		
- 26	1003430-2R	• GUSSET, FRAME, RH	1		
- 27	1003430-3L	• GUSSET, FRAME, LH	1		
- 28	1003430-4R	• GUSSET, FRAME, RH	1		
		/ATTACHING PARTS/			
	AN507C632-6	• SCREW, MACHINE -----*-----	4		
	554103	• • INSULATOR, STANDOFF	1		
	554103X	• • INSULATOR, STANDOFF	1		
- 29	554903	• STRAP, RETAINING	2		
		/ATTACHING PARTS/			
	MS35223-30	• SCREW, MACHINE -----*-----	2		
- 30	424325	• CLAMP	1		
- 31	554104	• PLATE, IDENTIFICATION	1		
	554104X	• PLATE, IDENTIFICATION	1		
		/ATTACHING PARTS/			
	460656K1BB	• SCREW, MACHINE, BIND. HD NO. 4-40 BY 1/4 IN. LG	2		
	901001K1BB	• WASHER, LOCK, SPRING, NO. 4	2		
	423715K1BB	• WASHER, FLAT, NO. 4 -----*-----	2		
- 32	553904	• PANEL ASSY, FRONT /SEE FIG. 38 FOR BRKDN/	1		

Radar Set Control C-818A/APS-42

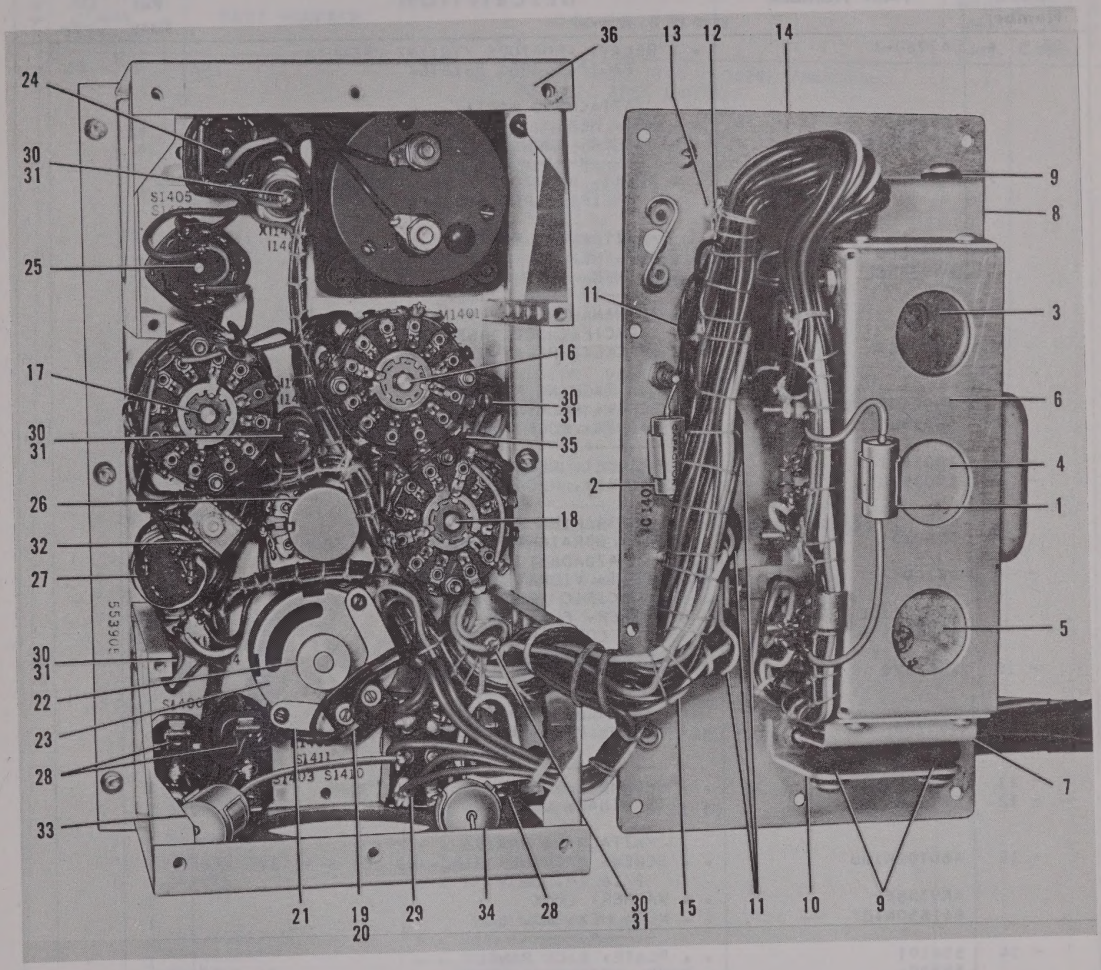

Figure 38. Radar Set Control Panel Assemblies

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
38	NO NUMBER	PANEL ASSEMBLIES, RADAR SET CONTROL	REF		
	554100	PANEL ASSEMBLY, BACK PLATE /NHA 553900/	REF		
	554100	. PANEL ASSEMBLY, BACK PLATE /NHA 553900/ /SEE FIG. 37 FOR REQD/	REF		
- 1	CP04A1EC104V	. . CAPACITOR, FIXED, PAPER DIELECTRIC	1		
- 2	XF2653	. . CAPACITOR, FIXED, PAPER DIELECTRIC, 0.22UF, PORM 20 PCT, 300V /72928/ /BENDIX-PACIFIC SPEC 560483-6/	1		
- 3	C8773-1	. . RELAY, ARMATURE /70119/ /BENDIX-PACIFIC SPEC 560568/	1		
		/ATTACHING PARTS/			
	AN340C6	. . NUT, HEX	3		
	AN935B6L	. . WASHER, LOCK	3		
		-----*-----			

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
38 - 4	A7760-1	• • RELAY, ARMATURE /70119/ /BENDIX-PACIFIC SPEC 561076/	1		
		/ATTACHING PARTS/			
	AN340C6	• • NUT, HEX	4		
	AN935B6L	• • WASHER, LOCK	4		
		-----*-----			
- 5	C8778-1	• • RELAY, ARMATURE /70119/ /BENDIX-PACIFIC SPEC 560567/	1		
		/ATTACHING PARTS/			
	AN340C6	• • NUT, HEX	3		
	AN935B6L	• • WASHER, LOCK	3		
		-----*-----			
	75-6	• • TERMINAL, LUG /79963/ /BENDIX-PACIFIC SPEC 463040/	2		
- 6	1003809	• • BRACKET, RELAY MTG	1		
		/ATTACHING PARTS/			
	AN505PB6-3	• • SCREW, MACHINE	4		
	AN935B6L	• • WASHER, LOCK	4		
		-----*-----			
- 7	1003821	• • BRACKET, RELAY MTG	1		
- 8	1003570	• • BRACKET, RELAY MTG	1		
		/ATTACHING PARTS/			
	554076	• • PIN, STRAIGHT, HEADED /MAKE FROM AN470AD6-12/	4		
- 9	9610D	• • MOUNT, VIBRATION /81860/ /BENDIX-PACIFIC SPEC 561077-7/	4		
	AN960C10L	• • WASHER, FLAT	8		
	AN381-1-6	• • PIN, COTTER	4		
		-----*-----			
- 10	1003820	• • BRACKET, ANGLE	2		
		/ATTACHING PARTS/			
	460708K1BB	• • SCREW, MACHINE, BIND. HD NO. 6-32 BY 7/16 IN. LG	4		
		-----*-----			
- 11	AN931-6-10	• • GROMMET, RUBBER	4		
- 12	561026	• • TERMINAL, LUG	1		
		/ATTACHING PARTS/			
- 13	460702K1BB	• • SCREW, MACHINE, BIND. HD NO. 6-32 BY 3/16 IN. LG	1		
	AN935B6L	• • WASHER, LOCK	1		
	461650K1BY	• • NUT, HEX, NO. 6	1		
		-----*-----			
- 14	554101	• • PLATE, BACK PANEL	1		
	553904	• PANEL ASSEMBLY, FRONT /NHA 553900/ /SEE FIG. 37 FOR REQD/	REF		
- 15	553910	• • WIRING HARNESS, BRANCHED	1		
- 16	49832H3	• • SWITCH, ROTARY /76854/ /BENDIX-PACIFIC SPEC 560688/	1		
- 17	49833H3	• • SWITCH, ROTARY /76854/ /BENDIX-PACIFIC SPEC 560689/	1		
- 18	49834H1	• • SWITCH, ROTARY /76854/ /BENDIX-PACIFIC SPEC 560690/	1		
	554106	• • CONTROL ASSY, SWEEP DELAY	1		
		/ATTACHING PARTS/			
	1003734	• • WASHER, FLAT	1		
		-----*-----			

Figure and Index Number	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	Units Per Assy.	Usable On Code	Rev.
38 - 19	1SM1	• • • SWITCH, SENSITIVE /40228/ /BENDIX-PACIFIC SPEC 560738/	1		
		/ATTACHING PARTS/			
	AN515-2-8	• • • SCREW, MACHINE	2		
	AN960-2	• • • WASHER, FLAT	2		
	AN935B2L	• • • WASHER, LOCK	2		
	AN340C2	• • • NUT, HEX	2		
		-----*-----			
- 20	1003731	• • • INSULATOR, PLATE	1		
- 21	1003162	• • • BRACKET, CONTROL PANEL SW	1		
- 22	1003161	• • • CAM, CONTROL PANEL SW	1		
		/ATTACHING PARTS/			
	AN565D6H3	• • • SETSCREW	2		
		-----*-----			
- 23	42W	• • • RESISTOR, VARIABLE /12697/ /BENDIX-PACIFIC SPEC 560687/	1		
- 24	560692	• • SWITCH, ROTARY	1		
- 25	560691	• • SWITCH, ROTARY	1		
		/ATTACHING PARTS/			
	AN960C616L	• • WASHER, FLAT	1		
		-----*-----			
- 26	W2973	• • RESISTOR, VARIABLE, 5K, PORM 20 PCT, /71450/ /BENDIX-PACIFIC SPEC 560699/	1		
- 27	90	• • RESISTOR, VARIABLE, 250K, PORM 20 PCT /71450/ /BENDIX-PACIFIC SPEC 560693/	1		
		/ATTACHING PARTS/			
	AN960C616L	• • WASHER, FLAT	1		
		-----*-----			
- 28	AN3021-3	• • SWITCH, TOGGLE	3		
- 29	1004432	• • SWITCH, TOGGLE /ALTERED FROM AN3027-3/	1		
		/ATTACHING PARTS/			
	450528K1BB	• • WASHER, LOCK, 1 5/32 ID	4		
		-----*-----			
- 30	MS25010-5A	• • LIGHT, PANEL	5		
- 31	AN3140-327	• • • LAMP, 28V	1		
- 32	561026	• • TERMINAL, LUG	1		
		/ATTACHING PARTS/			
	AN507C632-5	• • SCREW, MACHINE	1		
	454533-11	• • SPACER	1		
	MS35223-27	• • SCREW, MACHINE	1		
	MS35333-37	• • WASHER, LOCK	1		
		-----*-----			
- 33	CP04A1EE474K	• • CAPACITOR, FIXED, PAPER DIELECTRIC	1		
- 34	CP04A1EC474V	• • CAPACITOR, FIXED, PAPER DIELECTRIC	1		
- 35	560694-4	• • CAPACITOR, FIXED, CERAMIC DIELECTRIC, 0.02UF, P100 PCT, M.000 PCT	1		
- 36	553905	• • COVER, PANEL	1		

Indicator IP-217/APS-42A

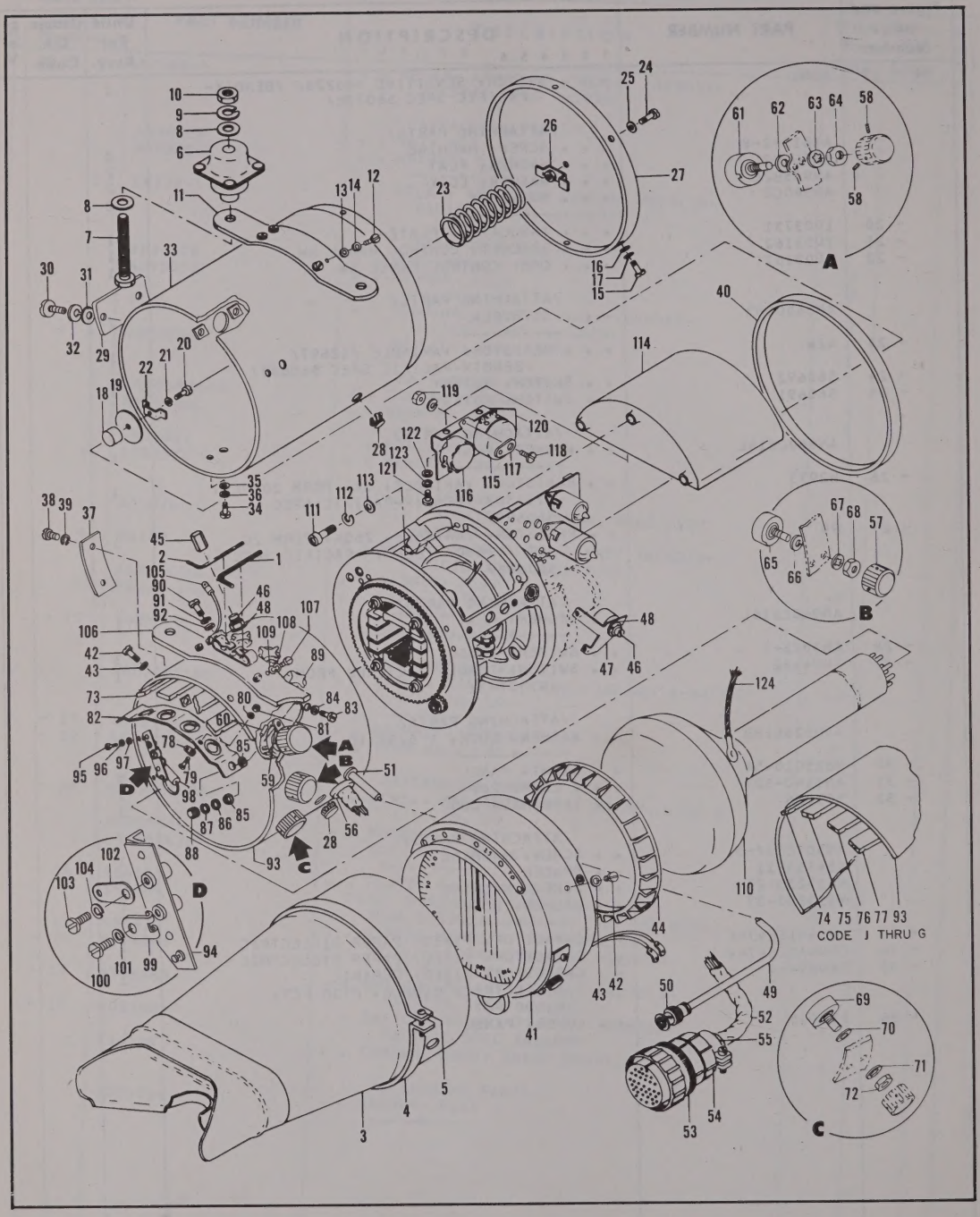

Figure 39. Azimuth and Range Indicator, IP-217/APS-42A

SECTION III
NUMERICAL INDEX

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
AEMMDL228DWG3620			26 - 16	1	
			27	REF	
AN122693		5315-292-4814	29 - 58	2	
AN256-6			2 - 4	1	
AN256F6		5310-207-9319	NHA 554690		
AN3C4A		5306-150-9528	25	1	
AN3021-3		5930-274-5114	38 - 28	3	
AN3102A20-29S		5935-236-0972	46 - 38	1	
AN3140-327		6240-155-7836	38 - 31	1	
AN316C4			12	12	
AN3219-1			12 - 7	1	
AN3234-1		5930-549-0585	28 - 73	2	
AN340-3			43	1	
AN340C2		5310-266-0516	38	2	
AN340C6		5310-176-8093	38	10	
AN345C3		5310-167-1375	12	5	
AN381-1-6		5315-234-1844	38	4	
AN426AD2-3		5320-117-6010	NHA 554122		
AN426AD3-5		5320-117-6939	NHA 554101		
AN426AD3-7		5320-117-6941	NHA 1003430		
AN426B3-5		5320-165-8768	NHA 554670		
AN426B3-7			NHA 554670		
AN430A2-3		5320-241-1812	NHA 554132		
			NHA 1022169		
AN470AD2-3		5320-119-6754	NHA 1004442		
			NHA 554754		
AN470AD3-4		5320-117-6815	NHA 554690		
AN470AD3-5			NHA 1003167		
AN470AD3-7		5320-117-6818	NHA 554725		
AN470B3-3			NHA 554130		
			NHA 553981		
AN470B3-4		5320-119-6819	NHA 554122		
			NHA 554122		
			NHA 553981		
AN500AC4-8		5305-206-7588	34	1	
AN505C4-5		5305-207-1829	31 - 2	7	
AN505C6-6		5305-282-2262	25	7	
AN505PB4-4			15	1	
AN505PB6-3			38	4	
AN505PB6-6		5305-527-4451	12	4	
AN507-440-4		5305-282-8485	23	4	P1
AN507-440-5		5305-282-4856	23	1	
AN507-440-6		5305-174-3898	18	6	P1
AN507C632-5			38	1	P1
AN507C632-6		5305-282-4071	37	4	
AN507PB632-4			21	2	P1
AN507PB632-7			NHA 554850		
AN510-10-8		5305-151-3219	23	4	
AN510PB3-4		5305-145-6931	39 - 79	1	P1
AN515-2-8		5305-151-3561	38	2	
AN515-4-28			28 - 28	2	
AN515-4-3		5305-151-3575	11	4	
AN515-4-5		5305-206-0541	12	21	
AN515-4-6		5305-151-3578	11	1	
AN515-416-10		5305-145-6807	24 - 38	6	
AN515-6-10		5305-151-1850	11	4	
AN515-6-16		5305-206-0551	11	4	
AN515-6-4		5305-206-0515	11	4	
AN515-6-6		5305-298-7936	11	9	
AN515-6-7		5305-151-1848	11	46	
AN515-6-8		5305-206-0512	11	6	
AN515C4-10		5305-264-2317	28 - 74	5	
AN515C4-4		5305-271-2960	28	4	
AN515C6-5		5305-271-8028	33 - 7	2	P1
AN515C6-7		5305-515-7090	NHA 554670		
AN515C8-6		5305-281-1585	33 - 11	1	
AN515PB3-3		5305-282-9488	4 - 28	2	
AN515PB4-4		5305-282-5464	9	22	
AN515PB4-5		5305-206-0518	NHA 554850		
AN515PB6-24			11	2	
AN515PB6-5		5305-207-1446	9	2	
AN515PB6-7			NHA 554850		
AN520C10-12		5305-156-2616	23	2	
AN565D1032H16			40 - 73	3	
AN565D4H2		5305-639-7293	29 - 40	4	
AN565D6H2		5305-297-4013	33 - 41	2	
AN565D6H3		5305-285-3218	37 - 9	20	P1
AN565D6H6		5305-285-3219	33 - 15	1	
AN565D8H6		5305-282-5796	12	1	
			33 - 22	2	
AN6227-24			31 - 4	1	P1
AN6227-28		5330-196-5308	2 - 22	1	P1
AN6230-12		5330-054-6870	40 - 81	1	P1
AN659-38		5940-636-7111	45 - 19	9	
			NHA 1003601		
			NHA 1024520		
			NHA 1024502		
AN742D6C		5340-351-3600	2 - 3	1	P1
AN749-3-5			39 -105	1	P1
AN931-16-22		5325-336-8228	23 - 54	1	P1
AN931-3-5		5325-174-5317	4 - 5	5	P1
AN931-4-7		5325-263-6632	9 - 41	6	P1
			NHA 553800		
AN931-6-10		5325-291-9366	15 - 20	5	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
AN931A5-9		5325-300-4802	12	1	P1
AN935-B4L			23	3	
AN935-3		5310-515-8706	42 - 7	3	P1
AN935-3L		5310-261-7437	32	2	P1
AN935-416L		5310-167-0667	34	2	P1
AN935-49			42	2	
AN935-6L		5310-167-0696	11	4	
AN935B10L		5310-184-8968	23	6	P1
			NHA 553710		
AN935B2		5310-184-8990	4 - 32	3	P1
AN935B2L			30 - 14	15	P1
AN935B3L		5310-261-7137	9	18	P1
AN935B4L		5310-184-8995	2	266	P1
			NHA 1003178		
			NHA 554803		
AN935B5L		5310-221-3084	12	4	P1
AN935B6L		5310-184-8978	2	183	P1
			NHA 553630		
			NHA 553685		
AN935B8L		5310-167-0659	2	50	P1
			NHA 553830		
			NHA 553830		
AN936A3		5310-209-0738	4 - 29	2	
AN936A4		5310-167-0875	4 - 22	2	P1
AN936A6		5310-167-0876	4	2	
AN960-2		5310-275-1292	38	2	
AN960-2L		5310-282-6902	11	2	P1
AN960-4L		5310-167-0831	40 - 32	2	
			NHA 1003477		
AN960-6L		5310-167-0832	11	42	
			NHA 554800		
AN960C10L		5310-167-0812	38	8	P1
AN960C3L		5310-285-7058	40 - 44	1	
AN960C4L		5310-282-6904	28	5	
AN960C416L		5310-760-1693	28 - 67	1	P1
AN960C6L		5310-282-6905	28 - 62	3	
AN960C616		5310-167-0804	12	1	
AN960C616L		5310-183-4355	28 - 37	3	
AN960C8L			28 - 20	2	
AN960PD3		5310-515-9341	NHA 554101		
AN9604L		5310-167-0831	34	10	
AN995B8L			2	2	
ASP371			12 - 10	1	
AY201S1B		5990-504-6032	33 - 36	1	P1
AY201S3B			35 - 4	2	
AY502-4		5990-503-3263	45 - 10	1	P1
AY932A1			45 - 6	1	
A1A752		5841-611-2412	28 - 51	1	P1
A10H		5935-321-5093	12	1	P1
A10P		5935-198-9603	12	1	P1
A10S		5935-295-4354	9 - 16	1	P1
A11A4			2	1	
			13	REF	
A12004			42	1	
A12260			42	2	
A12326			42	1	
A13019			42	1	
A131023			39 - 59	1	
A13243			42	1	
A13244			42	2	
A13245			42	2	
A15ABF2			2	1	
			13	REF	
A15S			34 - 6	2	
A15SH			12	3	P1
A15099			42	1	
A15171			42	1	
A15173			42	1	
A201CW			13 - 12	1	
A2141-6			13 - 8	1	
A31848			42	1	
A36G		5940-356-2350	11 - 41	1	P1
A5256			31 - 17	1	
A5345-328		6210-295-2627	39 - 89	4	P1
A5934			6 - 23	1	
A7416			31 - 6	1	
A7417		5330-333-0116	31 - 16	1	P1
A7418		5310-209-6099	31 - 18	1	P1
A7760-1		5945-258-3554	38 - 4	1	P1
A793			5	8	
A822-2			5 - 39	1	
			8 - 47	1	
A822-8			8 - 49	1	
A882-8			5 - 41	1	
A886-1			5 - 40	1	X1
			8 - 48	1	
A920			40 -101	1	
A94012RGB1D1		5821-338-3945	14	1	P1
A997-1			5 - 38	1	X1
			7 - 71	3	
			8 - 51	1	
BY101		5960-881-1391	34 - 57	3	
B12257			42	1	
B12898			42	1	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
B2133		5945-259-4368	11 - 23	1	
B31261			42	1	
B543		3110-142-4335	31 - 12	1	P1
B546		3110-142-4341	32 - 58	1	P1
B7542			18 - 25	1	P1
B77G		5940-271-8615	11 - 40	4	
B788717-1			42 - 9	1	
B92032			42	1	
CC20SH100F		5910-666-8931	5	2	P1
CC20SL100F			5 - 24	2	P1
CC21CH050D		5910-100-5782	7 - 12	2	P1
CC21CH150J			6 - 26	1	
CC26CH200K		5910-160-1806	7 - 5	1	P1
CC26SL620K			7 - 13	1	P1
CC30CH470J			6 - 25	1	P1
CC32CG750G		5910-280-7031	8 - 16	1	P1
CE63C500G		5910-126-9566	11 - 38	1	P1
CK60AW102M			15 - 33	1	
CK60AW203M			23 - 55	1	
CL35BD250MP2		5910-881-5846	34 - 53	1	P1
CM20B101K		5910-101-5617	16 - 14	1	P1
			19 - 30	1	P1
CM20B121K		5910-101-5610	16 - 21	1	P1
CM20B221K		5910-101-5624	9 - 37	1	P1
CM20B330K		5910-100-8141	15 - 41	2	P1
			16 - 11	1	P1
			20 - 29	3	P1
			21 - 25	3	P1
CM20B471K		5910-101-4896	12 - 35	1	P1
			15 - 35	1	P1
			16 - 7	1	P1
			19 - 31	1	P1
			20 - 28	1	P1
			21 - 26	1	P1
			22 - 1	1	P1
CM20D221J		5910-191-9640	11 - 16	1	P1
CM30B102K		5910-101-4023	16 - 20	1	P1
CM30B332K		5910-100-8059	10 - 18	1	P1
CM30C332G		5910-101-5802	20 - 15	1	
CM35A392K			7 - 49	1	P1
CM35A472M		5910-668-2088	11 - 37	2	P1
CM35B103K		5910-100-8149	15 - 36	1	P1
			16 - 26	1	P1
			16 - 34	2	P1
			17 - 16	8	P1
			22 - 9	2	P1
			22 - 15	2	P1
			32 - 9	2	P1
CM65B102J		5910-101-3449	11 - 36	1	P1
CN22AX103M			7 - 23	2	P1
			7 - 34	2	P1
			7 - 48	1	P1
			7 - 66	1	P1
CP04A1EC104M			16 - 25	1	
			22 - 26	1	
			40 - 24	3	
CP04A1EC104V			36 - 22	1	
			38 - 1	1	
CP04A1EC104V3			15 - 39	2	
			19 - 33	2	
			21 - 22	1	
CP04A1EC105V3			15 - 40	2	
			21 - 46	2	
CP04A1EC473K		5910-666-8787	9 - 38	2	
CP04A1EC473M			16 - 6	4	
			16 - 39	1	
CP04A1EC473V3			15 - 34	1	
			19 - 38	2	
CP04A1EC474V			38 - 34	1	
CP04A1EE474K			38 - 33	1	
CP04A1KC103K3			10 - 20	2	
CP04A1KC104K3			10 - 11	3	
			10 - 19	2	
CP04A1KE103K3			36 - 9	3	
CP04A3KC473K		5910-828-5726	34 - 46	2	
CP04A3KE103K			34 - 52	2	
CP05A1EE104M		5910-667-1190	40 - 23	2	
CP05A1EE473M		5910-642-6267	40 - 25	1	
CP06SA6		5910-654-5792	23 - 20	1	P1
CP07SA5		5910-666-6285	23 - 23	2	P1
CP07SB6		5910-236-2622	23 - 24	2	P1
CP26A1EF103M		5910-112-7598	21 - 24	2	
CP54B4EF105L		5910-235-0888	12 - 46	1	
CP61B1EF105K		5910-160-2256	23 - 19	1	P1
CP61B1EF105X			23 - 13	2	
CP61B1FE105X			6 - 28	2	
CP70B1DF405K			15 - 42	1	
CV11A070		5910-556-9440	6 - 27	1	P1
CW123AU		5935-201-2336	12 - 16	3	P1
C8773-1		5945-258-3463	38 - 3	1	P1
C8778-1		5945-259-5353	38 - 5	1	P1
D1047		6130-635-5679	11 - 51	1	P1
D165			11 - 48	1	P1
D32593			42	1	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
D8757-1		5945-259-5521	35 - 3	1	P1
E10CF1			26	1	
			27	REF	
E4715		5935-259-2021	8 - 36	1	P1
E511		5340-598-2783	39	2	P1
E511K1BY			39 - 28	2	
FIL0-304SS		5305-215-6294	42 - 12	1	P1
FIL0-305SS			42 - 6	1	
			42 - 16	1	
			42 - 22	1	
FIL0-406SS		5305-207-4121	42 - 19	2	P1
FTSM1TUR		5940-578-3484	34	2	P1
F640			12 - 25	2	P1
F8742-1			35 - 2	1	
GB2 1-2 4			29 - 15	1	P1
			29 - 19	1	P1
			29 - 42	1	P1
GB2 1-2 5			29 - 17	1	P1
GB225		5325-291-0303	23 - 58	3	P1
GB34		3110-112-5872	29 - 20	2	P1
GP100-331			5 - 22	7	P1
			8 - 15	1	
GP1000-332-03			6 - 24	2	P1
			7 - 4	3	P1
			7 - 14	1	P1
			7 - 22	2	P1
			7 - 35	2	P1
			7 - 41	4	P1
			7 - 67	1	P1
			8 - 31	1	P1
GP500-331-03			5 - 23	24	P1
			8 - 14	9	P1
			8 - 30	1	P1
HCM			12 - 6	2	P1
HG2SM			9 - 55	2	
HML3		5340-629-5727	26 - 28	2	P1
HM3		5340-629-5726	26 - 29	2	P1
HSM2PDT			19 - 13	3	
			35 - 1	3	
HSM4PDT			19 - 12	2	
			21 - 40	1	
			35 - 2	1	
			46 - 11	1	
IPC4302			8 - 37	2	X1
IPC4303			8 - 39	2	X1
IPC4306			8 - 41	2	P1
IPC4307			8 - 40	2	X1
IPC6879			8 - 43	2	X1
IPC9706			8 - 42	2	
JAN0A2WA		5960-503-4880	9 - 11	2	P1
JAN0B2		5960-166-7648	23 - 12	1	P1
JAN0B2WA		5960-262-3763	9 - 10	2	
JAN1B35		5960-188-6580	3 - 4	1	P1
JAN1B35-14			3 - 5	2	P1
JAN1B63A		5960-188-3534	3 - 12	1	P1
JAN1N23B		5960-224-4870	3	5	
JAN1N23C		5960-284-6134	3 - 16	5	P1
			3	5	P1
JAN1N457		5960-646-4611	34 - 35	2	
JAN1N538		5960-519-6977	34 - 54	2	
JAN1N70		5970-498-3739	9 - 44	3	
JAN1Q22		5960-193-5100	3 - 28	1	
JAN2D21W			6	1	
JAN2J55		5960-242-6051	2 - 13	1	P1
JAN2K25		5960-107-7605	3 - 3	2	P1
JAN3B24W		5960-116-9924	11 - 1	2	P1
JAN3B29		5960-108-0238	11 - 2	2	P1
JAN4C35		5960-100-7136	11 - 3	1	P1
JAN5FP7A		5960-170-4583	39 -110	1	P1
JAN5R4GY		5960-507-3117	9	1	
JAN5R4WGY		5960-193-5111	9 - 1	1	P1
			23 - 8	2	P1
JAN5654		5960-509-3054	5 - 2	7	P1
			6 - 8	3	P1
			8 - 3	2	P1
			9 - 4	3	P1
			15 - 5	3	P1
			36 - 2	1	P1
JAN5670WA		5960-284-5843	40 - 4	1	
JAN5687		5960-193-5136	21 - 7	1	
JAN5725		5960-237-6917	6 - 9	1	P1
			15 - 6	2	P1
			19 - 3	1	P1
JAN5726		5960-553-6065	6 - 10	1	P1
			15 - 4	1	P1
			19 - 2	1	P1
			21 - 4	2	P1
JAN5727		5960-552-0082	6 - 12	1	P1
JAN5751WA		5960-284-5842	17 - 2	2	P1
JAN5814WA		5960-600-5235	9 - 13	1	P1
			15 - 9	3	P1
			17 - 3	1	P1
			19 - 10	2	P1
			21 - 6	5	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
JAN5814WA		5960-600-5235	36 - 4	2	P1
JAN5932		5960-262-0188	21 - 2	4	P1
JAN6AK5W		5960-262-1357	5	7	
			6	3	
			8	2	
JAN6AL5W		5960-188-0857	6	1	
JAN6AN5WA		5960-262-0150	19 - 8	1	P1
			40 - 2	1	P1
JAN6AS6W			6	1	
JAN6AS7G		5960-166-7674	9 - 2	1	P1
			23 - 9	1	P1
JAN6D4		5960-108-0263	6 - 13	1	P1
			21 - 9	1	P1
JAN6J6		5960-188-3967	8	1	
JAN6J6W		5960-284-9643	8 - 5	1	P1
JAN6J6WA			6	1	
JAN6X4		5960-166-7661	9 - 9	1	
JAN6X4W		5960-188-0880	9 - 9	1	P1
			23 - 11	1	P1
JAN6005		5960-518-3091	15 - 2	2	P1
			19 - 7	1	P1
JAN6096			5	7	
JAN6097		5960-248-3083	6	1	
JAN6100		5960-262-0155	9 - 6	1	
			15 - 7	1	
			19 - 5	1	
JAN6101		5960-284-9643	6 - 14	1	
			9 - 7	1	
JAN6187			6	1	
JLU1011		5905-120-1884	21 - 16	2	
			39 -116	1	
			46 - 32	1	
JLU1021		5905-114-3159	35 - 9	1	P1
			39	1	P1
JLU1031			20 - 5	1	P1
JLU1041		5905-195-6263	15 - 14	1	P1
			20 - 8	1	P1
			36 - 19	1	P1
JLU1052		5905-279-4902	18 - 6	1	P1
JLU5011		5905-198-9435	36 - 20	1	P1
JLU5021		5905-114-3278	20 - 6	1	P1
			35 - 10	1	P1
JLU5031		5905-107-8024	9 - 50	4	P1
			15 - 13	1	P1
			20 - 7	1	P1
JR21JE274PORM1PCT			20 - 11	1	P1
JR21JE364PORM1PCT			20 - 12	1	P1
JR21JE454PORM1PCT			20 - 13	1	P1
JR21JM4-1PORM1PCT			11 - 34	1	P1
JU1041P2040		5905-299-2089	39 - 61	1	P1
LA155D		5915-501-3223	12 - 23	1	P1
LA156H			12 - 24	1	P1
LA266A		5915-501-3480	35 - 14	1	P1
LB17596			3 - 32	1	
MH5MLSH19			44	1	
MRE7PG		5935-295-4341	17 - 10	4	P1
MRE7SG		5935-642-4403	23 - 36	4	P1
MS16108-1A		5935-685-9396	34	2	
MS16535-4			NHA 1046089		
MS16562-191		5940-581-4713	26 - 26	4	
MS20659-5			NHA 1015644		
MS21919DF9		5340-598-9864	NHA 554800		
MS24018-3			34 - 59	1	
MS24055-1		5935-754-8787	36 - 27	1	
MS24056-1		5935-754-8795	34 - 58	1	
MS24120-2		5935-631-1409	34 - 60	1	
MS25010-5A			38 - 30	5	
MS3057-12			37 - 11	4	
MS3057-16			39 - 54	1	
MS3057-8A		5935-688-4026	32 - 19	1	
MS3102A14S1S			12 - 21	2	
MS3102A16S1P		5935-149-3466	23 - 46	1	
MS3102A16S1S		5935-283-7188	12 - 19	2	
MS3102A20-11P		5935-644-7192	34 - 2	1	
MS3102A20-11S			23 - 48	1	
MS3102A20-27P		5935-280-2074	34 - 3	1	
MS3102A20-27SW		5935-283-7095	34 - 4	1	
MS3102A20-29P		5935-549-4494	12 - 20	1	
MS3102A20-29PW		5935-280-2466	23 - 47	1	
MS3102A28-15S			23 - 49	2	
MS3106B14S1P		5935-274-7288	13 - 11	1	
MS3106B20-27PZ			37 - 16	1	
MS3106B20-27S		5935-229-4441	37 - 12	1	
MS3106B20-29S		5935-258-8030	37 - 14	1	
MS3106B20-29SW			37 - 10	1	
MS3106B28-15P		5935-259-2515	39 - 53	1	
MS3108B16S1P		5935-274-7271	32 - 18	1	
MS335431-3			34 - 50	4	
MS35223-14		5305-638-3266	12	6	
MS35223-15			34	6	
MS35223-17		5305-638-3212	34	4	
MS35223-27		5305-638-3439	38	1	
MS35223-29		5305-638-3325	34	4	
MS35223-3		5305-620-8158	40 - 42	1	

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	CLASS CODE	SERIAL OR PART NO.			
MS35223-30		5305-638-3293	37	2	
MS35223-4		5305-655-7429	23	2	
MS35223-5		5305-638-3312	40 - 41	1	
MS35265-13		5305-559-0215	26 - 15	1	
MS35265-24			29 - 41	1	
MS35265-64		5305-614-0245	26 - 9	4	
MS35275-29		5305-058-6867	28 - 59	3	
MS35333-35		5310-579-5554	3	4	
MS35333-37		5310-579-0079	38	1	
MS35336-11			25	3	
MS35336-3			31 - 3	7	
MS35337-40		5310-551-7770	12	8	
MS35337-41		5310-198-3724	34	4	
MS35338-21		5310-558-8574	33 - 20	22	
MS35338-39		5310-167-0693	29 - 27	4	
MS35338-40		5310-579-3596	11	27	
			NHA 553700		
MS35338-41		5310-013-1044	11	50	
			NHA 554800		
			NHA 561080		
MS35338-42		5310-045-3299	11	7	
			NHA 553790		
MS35338-43		5310-045-3296	11	6	
			NHA 1004442		
			NHA 553800		
MS35338-78		5310-209-0727	28 - 29	11	
MS35338-79		5310-011-1041	28 - 60	7	
MS35338-80		5310-209-1171	11	10	
MS35338-81			26 - 36	3	
MS35338-82		5310-042-6758	12	15	
			NHA 554670		
MS35431-1		5940-614-0537	12	66	
			NHA 1015645		
			NHA 1015644		
			NHA 1003551		
MS35431-2			18 - 24	1	
MS35431-3		5940-050-2308	11 - 62	8	
			NHA 1015689		
			NHA 553685		
MS35431-5		5940-271-7258	34 - 51	2	
MS35431-8		5940-681-8184	12	2	
MS35457-10		5305-576-2279	29 - 65	4	
MS35457-25			39 -111	3	
MS35457-8		5305-579-4148	29 - 28	5	
MS35457-9		5305-687-6676	29 - 33	2	
MS35489-4		5325-174-5317	29 - 31	2	
MS35649-42		5310-013-4524	34	4	
MS35649-62			34	4	
MS90064-5		5330-641-1268	25 - 7	4	
M1139E			39 -114	1	P1
M5PLSH19		5935-259-3605	26 - 13	1	P1
			44 - 28	1	P1
M5SLRH19		5935-258-3000	34 - 7	1	P1
M5SLRN			46 - 6	1	
M7PLRN		5935-259-0081	46 - 31	1	
M7PLSH19		5935-259-7038	4 - 36	1	P1
			5 - 7	1	P1
			8 - 7	1	P1
			26 - 12	1	P1
			32 - 8	1	P1
M7SLRH19		5935-204-7719	12	1	P1
			34 - 9	2	P1
M7SLRN		5935-258-2920	6 - 35	1	P1
			6 - 53	1	P1
M7SLSH19		5935-259-3277	46 - 35	1	
M9PLRN		5935-259-3294	46 - 30	1	
M9PLSH19		5935-500-8242	26 - 11	1	P1
			46 - 3	1	P1
M9SLRH19		5935-259-4689	34 - 8	1	P1
M9SLRN		5935-258-2959	46 - 5	1	P1
M9SLSH19			46 - 37	1	P1
NAS51-12		5340-664-1417	33 - 47	1	P1
			41 - 25	2	P1
			43	1	P1
NAS51-18		5340-200-4458	28 - 8	1	P1
			44 - 6	1	P1
NAS620-8L			34	1	
PB21444		5841-564-8601	42 - 11	1	P1
PSX-25			11 - 42	1	P1
P50452			12 - 47	1	P1
RA20A1SA102AK		5905-108-6369	39 -115	1	P1
RCM19B102K			9 - 40	1	P1
			20 - 27	1	P1
			21 - 21	1	P1
RCM19B221K			19 - 34	1	P1
			20 - 26	1	P1
RCM20E142F			18 - 17	1	P1
RCM20E171F			18 - 21	1	P1
RCM20E421F			18 - 20	1	P1
RCM30D103J			17 - 21	2	
RCM35D103J			21 - 23	2	
RCM35E103F		5910-643-9132	18 - 18	1	P1
RCM35E502F			18 - 19	1	P1
RC20BF563K			NHA 1024518		

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	CLASS CODE	SERIAL OR PART NO.			
RC20GF101J		5905-190-8889	40 - 14	2	
RC20GF101K		5905-186-3008	5 - 11	1	P1
			6	2	P1
			7 - 3	1	P1
			15 - 30	3	P1
			16 - 8	2	P1
RC20GF102J		5905-195-6806	34 - 40	2	P1
RC20GF102K			7 - 52	1	
			7 - 65	1	
			9 - 28	1	
			17 - 20	4	
			20 - 25	2	
RC20GF103J		5905-185-8510	7 - 59	1	P1
			34 - 37	2	P1
RC20GF103K		5905-185-8518	5 - 10	3	P1
			7 - 9	2	P1
			7 - 38	1	P1
			9 - 23	3	P1
			15 - 31	1	P1
			16 - 15	1	P1
			16 - 41	1	P1
			19 - 21	1	P1
			21 - 32	1	P1
			22 - 7	1	P1
			22 - 17	1	P1
RC20GF104J		5905-195-6761	7 - 54	2	P1
			7 - 63	1	P1
			16 - 5	1	P1
			40 - 16	2	P1
RC20GF104K		5905-192-3987	7 - 11	1	P1
			7 - 26	1	P1
			9 - 33	1	P1
			10 - 6	2	P1
			10 - 15	1	P1
			15 - 27	4	P1
			16 - 38	1	P1
			19 - 27	1	P1
			20 - 3	1	P1
			20 - 22	1	P1
			22 - 4	3	P1
			22 - 14	2	P1
			36 - 6	5	P1
			40 - 18	1	P1
RC20GF105K		5905-192-0390	3 - 7	1	P1
			5 - 18	1	P1
			7 - 21	1	P1
			7 - 51	1	P1
			7 - 64	1	P1
			9 - 20	2	P1
			10 - 4	2	P1
			20 - 20	1	P1
			21 - 49	2	P1
			23 - 42	2	P1
RC20GF121K		5905-279-1869	5 - 19	5	P1
RC20GF122J		5905-190-8880	40 - 15	1	P1
RC20GF122K		5905-195-6809	7 - 28	2	P1
			8 - 10	1	
			9 - 30	1	
RC20GF123K		5905-190-8882	21 - 35	1	P1
RC20GF124K		5905-195-6500	7 - 29	1	P1
			7 - 43	1	P1
			15 - 24	2	P1
			16 - 4	1	P1
			17 - 12	4	P1
			21 - 29	2	P1
RC20GF151J		5905-299-1541	15 - 28	3	P1
RC20GF151K		5905-279-1756	7 - 1	1	P1
RC20GF152J		5905-279-1757	16 - 28	2	P1
RC20GF152K		5905-195-5514	9 - 47	1	P1
			35 - 6	2	P1
RC20GF153J		5905-279-2616	16 - 32	1	P1
RC20GF154J		5905-279-2522	15 - 21	1	P1
RC20GF154K		5905-192-9260	36 - 25	1	
RC20GF182J		5905-190-8881	7 - 40	1	P1
			16 - 16	1	P1
RC20GF183K		5905-190-8879	7 - 32	1	P1
			7 - 45	1	P1
			22 - 19	1	P1
RC20GF184K			10 - 5	2	P1
RC20GF202J		5905-190-8887	5 - 13	1	P1
			17 - 15	2	P1
RC20GF221K		5905-256-0409	5 - 12	12	P1
			8 - 12	6	P1
			9 - 35	1	P1
RC20GF222J		5905-279-1876	21 - 50	1	P1
			34 - 31	2	P1
RC20GF222K			9 - 27	2	P1
			16 - 24	1	P1
RC20GF223J		5905-171-2004	34 - 32	2	
RC20GF223K			9 - 29	1	P1
			16 - 22	1	P1
			19 - 22	1	P1
			22 - 6	1	P1
			22 - 16	1	P1

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	CLASS CODE	SERIAL OR PART NO.			
RC20GF224K		5905-295-3409	7 - 47	1	P1
			7 - 61	1	P1
			15 - 32	1	P1
			19 - 23	1	P1
			21 - 36	2	P1
			40 - 19	1	P1
RC20GF225J		5905-190-8885	21 - 30	1	
RC20GF270J		5905-279-1879	34 - 33	2	
RC20GF272K			9 - 34	1	P1
			19 - 24	1	P1
RC20GF273K		5905-195-6758	16 - 37	1	P1
			17 - 14	4	P1
			20 - 24	1	P1
			39 - 60	1	P1
RC20GF274K		5905-643-5140	17 - 13	8	P1
RC20GF302J		5905-279-1751	5 - 17	1	P1
RC20GF330K		5905-279-2621	8 - 11	1	P1
			16 - 33	1	P1
RC20GF331J		5905-171-1997	34 - 39	1	
RC20GF332J		5905-279-3506	7 - 62	1	
			34 - 36	2	
RC20GF332K		5905-195-6502	7 - 2	1	P1
			20 - 4	1	P1
RC20GF333J		5905-171-1998	5 - 21	1	P1
			20 - 21	3	P1
RC20GF333K		5905-249-4248	5 - 20	1	P1
			7 - 31	1	P1
			7 - 46	1	P1
			9 - 32	1	P1
			21 - 33	1	P1
			22 - 8	1	P1
			22 - 18	1	P1
RC20GF334K			7 - 10	2	P1
			16 - 2	1	P1
			36 - 7	2	P1
RC20GF392J		5905-279-3505	5 - 16	3	P1
RC20GF392K			15 - 26	1	P1
RC20GF393J		5905-279-3497	7 - 19	2	P1
RC20GF393K		5905-190-8882	20 - 1	1	P1
RC20GF394K		5905-185-6944	6 - 21	1	P1
			7 - 18	1	P1
			15 - 23	2	P1
			21 - 27	1	P1
			22 - 25	1	P1
RC20GF432J		5905-257-0935	5 - 15	2	P1
			16 - 19	1	P1
			34 - 44	2	P1
RC20GF470J		5905-252-4018	9 - 21	1	P1
RC20GF470K		5905-171-2002	21 - 38	8	P1
RC20GF471K			21 - 39	2	
			23 - 43	2	
RC20GF472J		5905-279-3504	9 - 25	2	P1
			21 - 31	1	P1
			22 - 5	1	P1
RC20GF472K		5905-195-6451	9 - 31	1	P1
			16 - 18	1	P1
RC20GF473K		5905-295-3410	6 - 22	1	P1
			7 - 15	1	P1
			10 - 17	1	P1
			16 - 40	1	P1
			20 - 17	1	P1
RC20GF474K		5905-185-6946	7 - 33	1	P1
			9 - 26	1	P1
			10 - 3	1	P1
			15 - 29	3	P1
			16 - 30	1	P1
			21 - 37	2	P1
			22 - 20	1	P1
			22 - 22	1	P1
			36 - 5	8	P1
			40 - 20	1	P1
RC20GF510J		5905-279-3517	34 - 56	4	
RC20GF511J		5905-279-3511	34 - 43	2	P1
RC20GF512J		5905-279-2019	15 - 25	1	P1
			19 - 25	1	P1
RC20GF513J		5905-279-3496	9 - 24	2	P1
			19 - 26	1	P1
RC20GF514J		5905-279-2516	16 - 13	1	P1
RC20GF515J		5905-279-2509	7 - 55	1	P1
			20 - 18	1	P1
RC20GF560K		5905-279-2509	7 - 44	1	P1
RC20GF561K		5905-195-6799	7 - 17	1	P1
RC20GF563K			16 - 23	1	P1
RC20GF680K			8 - 13	1	P1
			16 - 35	1	P1
RC20GF681J		5905-195-6791	16 - 17	1	P1
RC20GF681K		5905-256-0387	9 - 19	1	P1
			36 - 18	1	P1
RC20GF682J		5905-279-3503	7 - 37	1	P1
RC20GF683J		5905-249-3661	7 - 39	3	P1
			20 - 23	1	P1
			22 - 3	1	P1
RC20GF751J		5905-195-9481	12 - 11	1	P1
RC20GF752J		5905-249-4195	7 - 58	1	P1

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	CLASS CODE	SERIAL OR PART NO.			
RC20GF753J		5905-279-3495	7 - 20	2	P1
			7 - 57	1	P1
RC20GF754J		5905-279-1759	7 - 27	1	P1
			7 - 56	1	P1
RC20GF821K		5905-257-2631	36 - 17	1	P1
RC20GF822J		5905-299-1971	7 - 53	1	P1
			34 - 38	2	P1
RC20GF822K		5905-171-1985	15 - 22	1	P1
			21 - 28	1	P1
			22 - 2	1	P1
			36 - 8	2	P1
			40 - 17	1	P1
RC20GF823J		5905-279-3494	16 - 31	1	P1
RC20GF823K		5905-254-7097	10 - 16	1	P1
			20 - 19	1	P1
RC20GF824J		5905-221-5848	16 - 12	1	P1
RC20GF824K			18 - 5	1	P1
			22 - 23	1	P1
RC20GF910J		5905-279-3516	11 - 33	2	P1
RC20GF913J		5905-254-7100	20 - 2	1	P1
			35 - 7	1	P1
RC30GF103K			11 - 15	1	P1
RC30GF104K		5905-195-6501	9 - 36	1	P1
RC30GF393K		5905-186-2981	16 - 9	2	P1
RC30GF473K		5905-192-9187	16 - 10	1	P1
RC30GF511J			22 - 11	2	
RC30GF562K			16 - 1	1	P1
RC30GF822K			16 - 3	1	P1
RC32GF100K		5905-101-7856	18 - 13	1	
RC32GF101K			21 - 18	2	
RC32GF102J			18 - 10	1	
RC32GF104K		5905-299-2004	21 - 34	2	
RC32GF105K		5905-299-1985	11 - 55	1	
RC32GF122J		5905-299-2045	40 - 21	1	
RC32GF152J		5905-299-2046	34 - 55	4	
RC32GF153J		5905-299-2028	34 - 41	2	
RC32GF205J		5905-279-2648	11 - 56	3	
RC32GF222J		5905-279-1723	9 - 22	1	
RC32GF333K		5905-279-1716	7 - 30	1	
			22 - 10	1	
			22 - 13	1	
RC32GF393K			22 - 24	2	
RC32GF471J		5905-299-2048	18 - 12	1	
RC32GF472K			20 - 14	2	
RC32GF681J		5905-279-2626	18 - 11	1	
RC32GF681K		5905-279-2607	21 - 47	1	
RC32GF822J		5905-279-1718	35 - 8	1	
RC42GF100K		5905-279-4320	11 - 73	5	P1
			39 - 98	1	P1
RC42GF182J		5905-195-5524	40 - 22	1	
RC42GF393K			19 - 28	1	
RC42GF514J		5905-279-2526	11 - 54	5	P1
RG62U		6145-635-1399	NHA 1004408		
			NHA 554965		
			NHA 1003604		
			NHA 1003603		
			NHA 1004452		
			NHA 1003578		
RG71U		6145-161-0916	43 - 36	1	
RG87AU			NHA 553992		
RH25-15000H			10 - 22	1	P1
RH25-250R0G			17 - 19	2	P1
RH25-25000G			23 - 27	4	P1
RN20X5603F			12 - 13	4	
RN20X6310F			12 - 8	1	
			12 - 14	8	
RW55J100		5905-503-8648	34 - 16	2	P1
RW56J102			11 - 31	2	P1
R1537			18	1	P1
R1538			15	1	P1
			20	1	P1
			36	1	P1
R1539			9	4	P1
			15	1	P1
			20	1	P1
R1541			20	1	P1
			35	1	P1
R1543			21	2	P1
			39	1	P1
R700-1A0			44 - 23	1	P1
SETSCREW			13 - 4	2	
STU6021-03			40	1	
			42	1	
SW1459			35	1	P1
SW1460			36	1	P1
S1PPBDSX114			32	1	P1
S1P0BDSX114			32 - 27	1	P1
TA551TD3		5340-582-0779	46 - 14	1	
TE5683			11 - 49	1	P1
TE5684			23 - 15	1	P1
TE5685			23 - 16	1	P1
TE5691			11 - 45	1	P1
TE5695			15 - 43	1	P1
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TE5696			19 - 18	1	P1
TE5699			34 - 23	1	P1
TE5701			36 - 12	1	P1
TE5702			36 - 11	1	P1
TE5781			9 - 43	1	P1
			23 - 17	1	P1
TE5787		5950-648-6487	17 - 22	2	P1
TE5898			9 - 46	1	P1
TE5899			9 - 45	1	P1
TE5901			23 - 25	1	P1
TE5997			11 - 43	1	P1
TE6002			23 - 26	1	P1
TE6442			11 - 46	1	P1
TL49		5940-546-5475	20 - 9	2	P1
			21 - 17	2	P1
			11 - 53	2	P1
TL56			40 - 3	1	
TSFOT104		5960-188-1547	9 - 59	2	P1
TS101C01			21 - 43	4	P1
TS101P01		5935-260-0517	23 - 53	3	P1
			34 - 5	2	P1
			46 - 23	2	P1
TS102C01		5935-232-3758	5 - 37	7	P1
			8 - 53	3	P1
			9 - 60	10	P1
			15 - 46	11	P1
			19 - 37	5	P1
			23 - 30	2	P1
TS102P01		5935-257-6860	17 - 24	4	P1
			21 - 42	3	P1
			36 - 23	1	P1
			40 - 35	1	P1
TS102U01		5960-262-0015	5 - 1	7	P1
			6 - 7	5	P1
			8 - 2	2	P1
			9 - 3	4	P1
			15 - 3	7	P1
			19 - 1	2	P1
			21 - 3	2	P1
			36 - 1	1	P1
			NHA 553830		
TS102U02		5960-272-9094	6 - 11	3	P1
			8 - 4	1	P1
			9 - 5	1	P1
			19 - 4	1	P1
			21 - 8	1	P1
			40 - 1	1	P1
TS102U03		5960-669-8808	9 - 8	5	P1
			15 - 1	2	P1
			19 - 6	2	P1
			23 - 10	2	P1
TS103P01		5935-160-1365	9 - 61	1	P1
			15 - 47	3	P1
			17 - 23	3	P1
			19 - 36	2	P1
			21 - 41	6	P1
			36 - 24	2	P1
			40 - 30	1	P1
TS103U02		5960-264-3004	9 - 12	1	P1
			15 - 8	3	P1
			17 - 1	3	P1
			19 - 9	2	P1
			21 - 5	6	P1
			36 - 3	2	P1
UG1094U		5935-665-5718	5 - 33	1	
UG260BU		5935-173-5895	5 - 9	1	
			8 - 9	1	
			9 - 50	1	
UG260U		5935-149-4055	5	1	
			8	1	
			39	1	
UG261U			43 - 38	1	
UG262AU		5935-259-3879	23 - 45	1	P1
UG262CU			11 - 63	1	
UG262U		5935-500-8578	11	1	
			23	1	
UG290U		5935-299-7815	11 - 64	1	
			12 - 17	6	
			15 - 10	6	
			46 - 28	1	
UTCP1			46 - 29	1	
UTCP12			42 - 8	1	
WASHER			20	1	P1
W2972			38 - 26	1	P1
W2973			5 - 25	1	P1
XFS1611			36 - 21	1	P1
XFS2609			38 - 2	1	P1
XF2653			15 - 37	1	P1
XF2657			10 - 12	2	P1
XF2670			11 - 32	1	P1
			15 - 38	1	P1
			21 - 48	1	P1
XG1954N		5910-669-3294	9 - 54	1	P1
X1009-12592			2 - 10	1	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
X1942X		5940-272-3708	3	2	P1
			11	2	P1
			23	1	P1
			40	4	P1
X1980XA		5940-259-5745	32 - 31	1	P1
X1990		5940-642-1705	6 - 39	1	P1
			9 - 51	4	P1
X3534		5905-258-6371	5 - 14	1	
X913U			12 - 34	1	
Y4802		5910-694-5556	11 - 57	1	P1
0-429-4		4140-408-2502	13 - 3	1	
090-2-03			27 - 2	1	
1A1150			30 - 8	1	
1A783			28 - 32	1	
1N1883A		5960-881-1372	34 - 34	4	
1N486		5960-581-8086	34 - 45	1	
1N70		5970-498-3739	5 - 31	1	
1SM1		5930-549-0590	38 - 19	1	P1
10		5325-275-5901	12	3	P1
10-933			17 - 4	4	X1
1003142			8	1	
			NHA 1015523		
1003149		5841-216-4852	28 - 56	1	
1003152-1			NHA 554725		
1003152-2			NHA 1004361		
1003152-3			NHA 554677		
1003152-4			NHA 1004361		
1003152-5			NHA 1004364		
1003155		5841-024-5405	24 - 20	2	
1003155-1			NHA 1003155		
1003155-2			NHA 1003155		
1003155-3			NHA 1003155		
1003158			24 - 37	1	
			25	REF	
			26	REF	
1003159		5841-515-2146	39 - 22	1	
1003161		5841-327-4524	38 - 22	1	
1003162		5841-346-4758	38 - 21	1	
1003163		5841-327-4532	11 - 69	2	
1003164		5841-333-2643	11 - 70	2	
1003165			11 - 71	1	
1003166			NHA 1003167		
1003167		5841-347-7271	11	1	
1003169		5841-030-2434	25 - 6	1	
1003173			NHA 554005		
1003175			NHA 1003176		
1003176			40 - 66	1	
1003178			12 - 45	1	
1003180			NHA 554754		
1003183			NHA 553783		
1003184			NHA 553783		
1003185		5841-320-7384	17 - 8	2	
1003189		5841-212-5917	14 - 3	1	
			17	REF	
1003420-1		5950-646-1690	7 - 24	1	
1003422-1		5950-645-9988	9 - 42	1	
1003423-1		5950-648-3188	6 - 30	1	
1003423-3		5950-646-1676	7 - 6	1	
1003423-7		5950-645-9990	7 - 7	1	
1003424-2		5950-646-1671	16 - 27	2	
1003424-3		5950-648-4841	40 - 27	1	
1003424-5		5950-645-9985	40 - 28	1	
1003425-1		5915-503-2073	6 - 31	2	
1003427-1		5950-646-1672	6 - 33	1	
1003427-2		5950-646-0784	6 - 32	1	
1003427-3		5950-646-1674	5 - 28	5	
1003427-5		5950-645-9992	6 - 34	1	
1003428			40 - 62	2	
1003430-1			NHA 1003430-1L		
1003430-1L			37 - 25	1	
1003430-2			NHA 1003430-2R		
1003430-2R			37 - 26	1	
1003430-3			NHA 1003430-3L		
1003430-3L			37 - 27	1	
1003430-4			NHA 1003430-4R		
1003430-4R			37 - 28	1	
1003431		5841-320-7225	23 - 57	1	
1003434			10 - 23	1	
1003434-1			10	1	
1003434-2			10	1	
1003434-3			10	1	
1003435		5841-505-3464	9 - 18	1	
			10	REF	
1003441-1			SEE A7417		
1003441-2			SEE A7418		
1003441-3			SEE A5256		
1003441-4			SEE 3-313833SS		
1003441-5			SEE A7416		
1003442			SEE 47160		
1003443			SEE 46970		
1003444			SEE 46975		
1003450			39 - 82	1	
1003451		5841-320-7411	39 - 73	4	P1
1003452			NHA 553981		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1003453		5970-302-7977	39 - 85	4	P1
1003454			NHA 553987		
1003470			NHA 553905		
1003477			19 - 17	1	P1
			20	REF	
1003478		5841-505-1236	20	1	P1
1003479			20 - 16	1	
1003480		5841-346-4754	21 - 15	1	
1003481		5841-346-4753	20 - 10	1	
1003482		5841-346-4760	19 - 16	1	
1003484		5841-518-6157	20 - 30	1	P1
1003485			16 - 29	1	P1
1003486			16 - 36	1	P1
1003487			16 - 42	1	P1
1003488			22 - 21	1	P1
1003489			22 - 12	1	P1
1003491			21 - 19	1	
1003492			15 - 44	1	
1003493			15 - 45	1	
1003494			19 - 20	1	
1003496			22 - 27	1	P1
1003497			21 - 20	1	X1
1003498		5841-346-4755	23 - 56	2	X1
1003508			11 - 11	1	X1
			11 - 14	1	X1
1003511		5841-327-4517	33 - 43	1	P1
1003511-1			NHA 1003511		
1003512			33	1	
1003515		5310-857-4189	33 - 5	1	P1
1003516		5841-035-4515	33 - 46	1	P1
1003519			6	1	P1
1003531			24 - 23	4	P1
1003532			24	1	P1
1003533		5841-290-6042	24 - 26	1	P1
1003534			40 - 76	2	P1
1003537		5841-505-3666	11	1	P1
1003537-1			11	1	
1003537-2			11	1	
1003538			NHA 554031		
1003539			17 - 11	2	X1
1003540		5960-300-2358	17	1	P1
1003540-1			17 - 5	1	X1
1003541			17 - 26	3	P1
1003543			39 -106	1	P1
1003544		5841-024-5398	35 - 5	2	P1
1003545			NHA 553654		
1003546		5841-503-7485	9 - 52	1	X1
1003547		5910-669-3476	9	2	X1
1003549			19 - 14	1	P1
			20	REF	P1
1003550			19 - 11	1	M1
1003551		5935-341-7717	15	1	P1
1003553		5841-505-1053	15 - 15	1	P1
			16	REF	P1
1003554		5841-505-2926	15 - 16	1	P1
			16	REF	P1
1003555		5841-505-1144	15 - 17	1	P1
			16	REF	P1
1003556			15 - 12	1	M1
1003557			21 - 10	1	M1
1003559		5841-505-3459	21 - 13	1	P1
			22	REF	P1
1003560		5841-505-2557	21 - 12	1	P1
			22	REF	P1
1003561		5841-505-1050	21 - 14	1	P1
			22	REF	P1
1003562		5841-554-8097	30 - 39	1	X1
1003563		5841-694-8595	30 - 40	1	X1
1003567			30 - 25	1	P1
1003568		5841-216-4894	32 - 24	2	P1
1003570			38 - 8	1	X1
1003572		5841-320-7224	23	2	P1
1003573			30	1	P1
1003575-1		5841-346-4810	10 - 1	1	P1
			10 - 14	2	P1
1003575-2			10 - 2	1	P1
1003576		5841-518-6129	10 - 13	1	X1
1003576-1			10	1	
1003576-2			10	1	
1003576-3			10	1	
1003578			23	1	M1
1003579			9 - 17	1	P1
			10	REF	P1
1003581		5340-664-6030	9	2	X1
1003583			40 - 57	3	
1003584			18 - 2	1	X1
1003586			2 - 9	1	X1
1003590			SEE 43626		
1003592			17	1	X1
1003596		5307-297-3099	33 - 4	1	P1
1003597		5307-298-4110	33 - 3	1	P1
1003598		5841-320-7218	26 - 35	2	P1
			NHA 553800		
			NHA 553800		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1003599-1		5950-646 0709	11 - 20	1	P1
1003600		5841-503-7637	40 - 64	2	X1
1003601			33	1	P1
1003602			NHA 554042		
1003603			6 - 19	1	M1
1003603-1			6	1	
			NHA 1003603		
1003604			6 - 17	1	M1
1003606			9 - 48	1	P1
1003607		5841-503-7484	15 - 19	1	X1
1003608			32 - 25	1	X1
1003609L		5930-548-6178	32 - 20	1	P1
1003609R		5930-296-5826	32 - 21	1	P1
1003610		5340-325-0590	32 - 26	AR	P1
1003611			23 - 51	1	P1
1003612			23 - 31	1	P1
1003616		5841-038-1504	40 - 45	1	P1
1003619		3120-661-5081	NHA 554015		
1003676			NHA 553836		
1003677			12 - 5	1	
1003680			6	1	
1003683			12 - 12	1	X1
1003684			12 - 30	1	X1
1003685			NHA 1003697		
1003687			36 - 28	1	
1003687-1			NHA 1003687		
1003687-2			NHA 1003687		
1003687-3			NHA 1003687		
1003689			9 - 14	1	M1
1003691			36	1	P1
1003692			39 - 47	1	X1
1003693			NHA 553836		
1003694			SEE 48174		
1003695		5841-338-1662	SEE 43455		
1003700			SEE 43450		
1003702			SEE 43451		
1003704			SEE 40301		
1003705			SEE 40307		
1003706			SEE 40308		
1003707			SEE 40309		
1003708			SEE 40311		
1003709		5905-098-9617	SEE 42253		
1003710			SEE 40334		
1003711			SEE 40328		
1003712			SEE 40332		
1003713			SEE 40333		
1003714			SEE 41279		
1003715			SEE 40330		
1003716			SEE 40329		
1003717			SEE 21223B		
1003718			SEE 40331		
1003721			SEE 40349		
1003722		3120-293-5457	SEE 40356		
1003723		5960-523-5297	SEE 43422		
1003724		5841-320-7173	SEE 42392		
1003725-1			4 - 14	1	P1
1003726		5840-293-6448	SEE 40396		
1003727			SEE 40359		
1003728			SEE 40399		
1003729		5841-320-7220	SEE 40362		
1003731			38 - 20	1	P1
1003732		5330-599-1764	3 - 21	1	P1
			4 - 19	2	P1
1003733			SEE 42150		
1003734		5310-829-2617	38	1	P1
1003735			NHA 1003791		
			NHA 1003733		
1003736			NHA 1003791		
			NHA 1003733		
1003737			NHA 1003733		
1003738			NHA 1003733		
1003744			NHA 1003733		
1003745			NHA 1003733		
1003746			NHA 1003733		
1003747			NHA 1003791		
1003748			NHA 1003733		
1003749			NHA 1003733		
1003750			NHA 1003733		
1003751			NHA 1003733		
1003752			NHA 1003733		
1003753			NHA 1003733		
1003754			NHA 1003733		
1003755			NHA 1003733		
1003758			NHA 1003733		
1003759			SEE 47248		
1003760		5330-530-0627	SEE 40397		
1003761			SEE 47247		
1003762		5970-098-9890	SEE 41748		
1003763			4 - 7	2	X1
1003765			SEE 43452		
1003766			4 - 35	1	M1
1003789			NHA 1003443		
1003791			SEE 42208		
1003792			NHA 1003791		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1003795			NHA 1003791		
1003796			NHA 1003791		
1003799		5841-320-7184	3 - 23	1	
1003803			3 - 25	2	
1003804			4 - 27	1	P1
1003805		5935-257-7134	SEE 40355		
1003808			5	3	X1
1003809			38 - 6	1	X1
1003809-1			NHA 1003809		
1003809-2			NHA 1003809		
1003809-3			NHA 1003809		
1003810			12 - 29	1	X1
1003811			36 - 10	1	P1
1003813		5340-598-9713	33 - 37	1	P1
1003815			41 - 9	2	P1
1003816		5841-320-7372	41 - 2	2	P1
1003817			41 - 11	2	P1
1003819		5841-320-7223	41 - 3	2	P1
1003820			38 - 10	2	X1
1003820-1			NHA 1003820		
1003821			38 - 7	1	X1
1003822			NHA 553905		
1003823		5950-645-7658	NHA 553905		
1003824			NHA 553905		
1003825			NHA 553905		
1003826		5910-648-7592	7 - 70	4	P1
1003856			39 - 94	1	X1
1003857		5841-024-5409	26 - 14	1	P1
			27 - 7	1	P1
			27 - 30	1	P1
1003858			11 - 4	1	M1
1003859-4		5950-645-9986	8 - 22	1	P1
1003860			23 - 29	1	M1
1003861			23 - 28	1	P1
1003862			23	1	X1
1003873			SEE 14106-0		
1003874-8			43 - 24	1	P1
			43 - 28	1	P1
1004356		5915-333-8575	17 - 9	2	P1
1004357			NHA 1004358		
1004358-1		5841-518-6140	17 - 17	1	P1
1004358-2		5841-518-6188	17 - 18	1	P1
1004358-3			NHA 1004358		
1004358-4			NHA 1004358		
1004359			17 - 28	1	X1
1004360		5841-320-7475	17 - 7	1	P1
1004361			34 - 25	1	P1
1004361-1			NHA 1004361		
1004361-2			NHA 1004361		
1004361-3			NHA 1004361		
1004361-4			NHA 1004361		
1004361-5			NHA 1004361		
1004361-6			NHA 1004361		
1004364			12 - 55	1	P1
1004364-1			NHA 1004364		
1004364-11			NHA 1004364		
1004364-12			NHA 1004364		
1004364-13			NHA 1004364		
1004364-14			NHA 1004364		
1004364-15			NHA 1004364		
1004364-16			NHA 1004364		
1004364-17			NHA 1004364		
1004364-18			NHA 1004364		
1004364-2			NHA 1004364		
1004364-3			NHA 1004364		
1004364-4			NHA 1004364		
1004364-5			NHA 1004364		
1004364-6			NHA 1004364		
1004364-7			NHA 1004364		
1004364-9			NHA 1004364		
1004371			NHA 554610		
1004372			SEE 3511		
1004373			NHA 1004383		
1004374		5841-613-6683	29 - 21	1	X1
1004376		5841-099-3875	29	1	P1
1004377		5841-287-4507	29 - 7	1	P1
1004379		5310-582-8564	29 - 14	1	P1
1004380			SEE 2665		
1004382		5841-099-0021	29 - 23	1	P1
1004383		5841-099-0020	29 - 4	1	
1004384			NHA 1004435		
1004385		5841-613-6684	NHA 1004390		
1004386			NHA 1004382		
1004387		5841-287-4503	NHA 553800		
1004388		5841-613-6680	29 - 11	1	P1
1004389		5841-613-6685	29 - 9	1	P1
1004390			NHA 1004383		
1004391			SEE 10403		
1004392			29 - 36	4	X1
1004393		5841-512-2584	29 - 39	4	P1
1004394		5977-033-4513	29 - 38	4	P1
1004395			29	1	
1004396			29 - 64	1	
1004397			SEE 3513		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1004398		5841-528-1224	NHA 1015677		
1004399		5841-320-7428	29 - 61	1	X1
1004400			NHA 1015534		
1004401			29	1	P1
1004403		5841-099-0004	29 - 47	1	P1
1004404		5841-099-3869	29	2	
1004405			29 - 51	1	X1
1004406		5841-287-4504	29 - 55	1	X1
1004407		5841-517-4692	NHA 1015677		
1004408			5 - 8	1	M1
1004408-1			5	1	
1004410			3 - 27	1	M1
1004415		5120-302-6449	NHA 551600		
1004416		5120-302-6450	NHA 551600		
1004417			2 - 28	1	M1
1004417-1			NHA 1004417		
1004417-2			NHA 1004417		
1004420			34	1	P1
1004421		5841-310-3131	26 - 19	1	P1
			29	REF	P1
1004424			12	3	X1
1004425			NHA 1004390		
1004429			SEE M1139E		
1004430			39 -120	1	M1
1004430-1			NHA 1004430		
1004431		5841-346-4757	40 - 5	1	P1
1004432		5930-549-0799	38 - 29	1	P1
1004433			40	2	P1
1004434			NHA 1003677		
1004435		5950-343-1040	NHA 1004382		
1004436			37	1	P1
1004436-1			37	1	
1004437			37	1	P1
1004437-1			37	1	
1004438			37	1	P1
1004438-1			37	1	
1004439			37	1	P1
1004439-1			37	1	
1004441			10 - 21	1	M1
1004442		5841-505-1245	5	1	X1
1004443		5935-259-2711	8 - 32	1	P1
1004444			8 - 33	1	P1
1004449			8	1	X1
1004450		5841-333-8593	8 - 6	1	
1004452			8 - 8	1	M1
1004452-1			8	1	
1004453		5950-645-9991	5 - 29	7	P1
			8 - 17	4	P1
			8	1	P1
1004455-1		5950-646-1675	8 - 23	1	P1
1004455-2		5950-646-1673	8 - 24	1	P1
1004455-3		5950-646-1783	8 - 25	1	P1
1004455-4		5950-646-0817	5 - 26	1	P1
1007418			NHA 553836		
1015486			8 - 54	1	X1
1015486X			8	1	
1015495-1		5950-648-4844	8 - 29	2	P1
1015495X-1		5950-648-4844	8	2	P1
1015496		5915-503-2064	5 - 30	4	P1
1015496X		5915-503-2064	5	4	P1
1015497-1		5950-646-0133	8 - 18	1	P1
1015497-3		5950-645-9962	5 - 27	1	P1
1015497X-1		5950-646-0133	8	1	P1
1015497X-3		5950-645-9962	5	1	P1
1015498		5840-367-5348	8	1	X1
1015498X		5840-367-5348	8	1	X1
1015500		5840-367-5349	5	1	
1015500X		5840-367-5349	5	1	
1015504			34 - 18	1	M1
1015504X			34	1	
1015505		5841-098-9992	29	1	P1
1015505X		5841-098-9992	29	1	P1
1015506L			32	1	P1
1015506R			32	1	P1
1015506XL			32	1	P1
1015506XR			32	1	
1015507			32 - 32	2	P1
1015507-1			NHA 1015507		
1015507X			32	2	
1015508		5310-829-2616	SEE 10404		
1015508X		5310-829-2616	SEE 10404		
1015511			NHA 1015534		
1015511X			NHA 1015534		
1015512		5841-099-3863	29 - 50	1	P1
1015512X		5841-099-3863	29	1	P1
1015513		5841-099-0014	29	1	P1
1015513X		5841-099-0014	29	1	P1
1015514			8 - 1	1	
1015514-1			NHA 1015514		
1015514-2			8	1	
1015514-3			8	1	
1015514X			8	1	
1015514X-1			NHA 1015514		
1015514X-2			8	1	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1015514X-3			8	1	
1015522			8 - 34	1	P1
1015522X			8	1	
1015523			8 - 28	2	X1
1015523X			8	2	
1015527		5841-310-3129	29	1	P1
1015527X		5841-310-3129	29	1	P1
1015528			29 - 52	1	X1
1015528X			29	1	X1
1015529			29 - 53	1	X1
1015529X			29	1	X1
1015530			SEE 20191		
1015530X			SEE 20191		
1015531		5841-090-0041	29 - 46	2	P1
1015531X		5841-090-0041	29	2	P1
1015532			SEE 10769		
1015532X			SEE 10769		
1015533			NHA 1004400		
1015533X			NHA 1004400		
1015534		5841-338-1677	29 - 48	1	P1
1015534X		5841-338-1677	29	1	P1
1015535		5977-669-9068	29 - 35	1	P1
1015535X		5977-669-9068	29	1	P1
1015538			NHA 1015540		
1015538X			NHA 1015540		
1015539		5841-613-6687	29 - 24	1	
1015539X		5841-613-6687	29	1	
1015540			SEE 10397		
1015540X			SEE 10397		
1015547			NHA 1015534		
1015547X			NHA 1015534		
1015548			NHA 1015534		
1015548X			NHA 1015534		
1015549			39 - 29	1	M1
1015549X			39	1	M1
1015550			2 - 23	1	P1
			5	REF	P1
1015550X			2	1	P1
1015551			26 - 20	1	P1
			29	REF	P1
1015551X			26	1	P1
			29	REF	P1
1015555			NHA 1015644		
1015556			12	1	M1
			12	1	M1
1015556X			12	1	M1
			12	1	M1
1015558			39	1	A
1015558X			39	1	A
1015559		5841-505-3281	8	1	P1
1015559X		5841-505-3281	8	1	P1
1015560			NHA 554725		
1015560X			NHA 554725		
1015562			5	1	X1
1015562-1			5	1	
1015562-2			5	1	
1015562X			5	1	
1015562X-1			5	1	
1015562X-2			5	1	
1015563		5841-565-8690	12	1	P1
1015564			NHA 1015570		
1015564X			NHA 1015570		
1015565			NHA 1015564		
1015565X			NHA 1015564		
1015566			NHA 1015564		
1015566X			NHA 1015564		
1015567			NHA 1015570		
1015567X			NHA 1015570		
1015568			NHA 1015567		
1015568X			NHA 1015567		
1015569			NHA 1015570		
1015569X			NHA 1015570		
1015570			8 - 44	1	X1
1015570X			8	1	
1015572			34	1	
1015572X			34	1	
1015573			8 - 26	2	X1
1015573X			8	2	
1015574			NHA 553500		
1015575			NHA 553500		
1015576			NHA 553500		
1015577			NHA 553500		
1015578-1		5950-645-9989	8 - 19	1	P1
1015578X-1		5950-645-9989	8	1	P1
1015579			NHA 553790		
1015579X			NHA 553790		
1015580			12	1	M1
1015580X			12	1	M1
1015582			5 - 6	1	M1
1015582-1			5	1	
1015582X			5	1	
1015582X-1			5	1	
1015583			NHA 553500		
1015584			NHA 553500		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1015585			NHA 1004433		
1015585X			NHA 1004433		
1015586		5915-503-2062	11 - 6	1	P1
1015586X		5915-503-2062	11	1	P1
1015587		5841-212-5918	34	1	P1
1015587X		5841-212-5918	34	1	P1
1015591			34 - 1	1	M1
1015591-1			NHA 1015591		
1015591-2			NHA 1015591		
1015591-3			NHA 1015591		
1015591-4			NHA 1015591		
1015591X			34	1	
1015591X-1			NHA 1015591		
1015591X-2			NHA 1015591		
1015591X-3			NHA 1015591		
1015591X-4			NHA 1015591		
1015592-1			NHA 1003158		
1015592-2			NHA 1003158		
1015593-1			NHA 1015592		
1015593-2			NHA 1015592		
1015594-1			NHA 1015626		
1015594-2			NHA 1015626		
1015599		5841-338-1703	28 - 46	1	P1
1015599X		5841-338-1703	28	1	P1
1015600		5841-028-4111	28 - 27	1	P1
1015600X		5841-028-4111	28	1	P1
1015601		5340-809-3227	28 - 18	1	P1
1015601X			28	1	P1
1015602		5960-534-6363	3 - 1	2	P1
1015603			3	2	
1015604			3	2	
1015605			3	2	
1015609			NHA 553836		
1015609X			NHA 553836		
1015610		5340-809-3229	23	2	P1
1015610X			23	2	
1015611-1		5950-646-1707	8 - 20	1	P1
1015611-2		5950-645-9996	8 - 21	1	P1
1015611X-1		5950-646-1707	8	1	P1
1015611X-2		5950-645-9996	8	1	P1
1015612		5841-217-6903	30	1	X1
1015612X		5841-217-6903	30	1	X1
1015613		5841-217-6902	30	1	X1
1015613X		5841-217-6902	30	1	X1
1015614-1		5841-320-7406	39 - 74	1	P1
1015614-2		5841-320-7432	39 - 75	1	P1
1015614-3		5841-320-7407	39 - 76	1	P1
1015614-4		5841-320-7408	39 - 77	1	P1
1015615		5841-535-4834	39 - 41	1	P1
			41	REF	P1
1015616		5841-505-1521	41	1	
1015617			NHA 1015616		
1015618-1			NHA 1015622		
1015618-2			NHA 1015622		
1015619-1			NHA 1015618		
1015620-1			NHA 1015622		
			NHA 1015625		
1015620-2			NHA 1015622		
			NHA 1015625		
1015621-1			NHA 1015618		
1015621-2			NHA 1015618		
1015622-1		5841-571-8847	31 - 1	1	
1015622-2			31	1	
1015623-1			NHA 1015622		
			NHA 1015625		
1015623-2			NHA 1015622		
			NHA 1015625		
1015624-1			NHA 1015622		
			NHA 1015625		
1015624-2			NHA 1015622		
			NHA 1015625		
1015625-1			31 - 21	1	
1015625-2			31	1	
1015626-1			NHA 1015625		
1015626-2			NHA 1015625		
1015627-1			NHA 1015626		
1015627-2			NHA 1015626		
1015628-1			NHA 1015626		
1015628-2			NHA 1015626		
1015629			25 - 45	2	P1
1015631			NHA 551600		
1015632			NHA 1003733		
1015632X			NHA 1003733		
1015633			NHA 1003444		
1015635		4140-288-7657	SEE 260D		
1015635-2		5841-520-7890	13 - 1	1	
1015635-3			SEE 0-429-4		
1015635-4			SEE 77R4		
1015635-5			SEE 77R3		
1015635-7			SEE A2141-6		
1015635-8			13 - 5	1	
1015635X		4140-288-7657	SEE 260D		
1015636-1L			NHA 1015636		
1015636-1R			NHA 1015636		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1015636-2L			NHA 1015636		
1015636-2R			NHA 1015636		
1015636L			32 - 29	1	P1
1015636R			32	1	P1
1015637			NHA 553514		
1015637X			NHA 553514		
1015638-1			6	1	
			NHA 553670		
1015638-2			6	1	
1015639			NHA 553836		
1015640			NHA 1004361		
1015642			NHA 1003158		
1015642X			NHA 1003158		
1015644			12	1	M1
1015645			12	1	M1
1015646			NHA 553790		
1015647		5841-035-4516	28 - 40	1	P1
1015648			24 - 16	1	M1
1015650			NHA 1015651		
			NHA 1015653		
			NHA 1015656		
			NHA 1015657		
			NHA 1015658		
1015651			37 - 1	1	P1
1015651-1			NHA 1015651		
1015652		5355-667-9836	37 - 2	1	P1
1015653			37 - 3	1	P1
1015653-1			NHA 1015653		
1015654			37 - 4	1	P1
1015655		5355-667-9837	37 - 5	1	P1
1015656			37 - 6	1	
1015656-1			NHA 1015656		
1015657			37 - 7	1	P1
1015657-1			NHA 1015657		
1015658		5355-668-3274	37 - 8	1	P1
1015658-1			NHA 1015658		
1015671		5841-296-1395	25 - 27	1	P1
1015671X		5841-296-1395	25	1	P1
1015672			NHA 553904		
1015676			29 - 16	1	
			29	1	
1015677			29 - 62	1	
1015678			29	2	
1015688			29	1	
1015689			29	1	
1015690			29	1	
1015691			29	1	
1015694			29 - 18	1	
1015696			NHA 554031		
1015912-1		5305-702-4555	23	3	P1
1015912-2			34	2	
1015912-3			23	1	P1
			NHA 553670		
1015912-5			12	4	
			NHA 53670		
1015912X-1			23	3	P1
1015912X-2			34	2	
1015912X-3			23	1	P1
1015912X-5			12	4	
1016443			28 - 77	2	M1
1016443X			28	2	
102P121			32 - 28	4	P1
1020313			39	1	M1
1022167			5 - 43	1	
1022169			30	1	
1022169-996L			NHA 1022169		
			NHA 1022169		
1022169-996R			NHA 1022169		
			NHA 1022169		
1022169L			30	1	
1022169R			30	1	
1022192			11 - 17	1	
1022193			23 - 52	2	
1022194-1			6	1	
1024036			43	1	
1024466-1			SEE UTCP1		
1024466-2			SEE UTCP12		
1024467-1			SEE AY932A1		
1024467-2			SEE AY502-4		
1024468			SEE R700-1A		
1024469			43 - 22	1	
			44	REF	
1024470			43 - 19	1	
			45	REF	
1024471			44 - 27	1	
1024472			44 - 17	1	
1024473-1			44 - 22	1	
1024473-2			44 - 18	1	
1024474			44 - 19	1	
1024475			44 - 16	1	
1024476			44 - 13	1	
1024478			44 - 15	1	
1024479			44 - 14	1	
1024480			44 - 26	3	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1024481			45 - 5	3	
1024482			45 - 14	1	
1024483			45 - 4	1	
1024484			45 - 3	1	
1024485			45 - 9	2	
			45 - 13	2	
1024486			43 - 34	2	
1024486-1			NHA 1024486		
1024486-2			NHA 1024486		
1024487			45 - 2	1	
1024490			44 - 10	1	
1024492-1			NHA 1024036		
1024492-2			NHA 1024036		
1024493			43 - 31	1	
1024494			43 - 30	1	
			46	REF	
1024494-1			46 - 36	1	
1024495			43 - 26	1	
			46	REF	
1024497			46 - 1	1	
1024497-1			46 - 2	1	
1024498			43 - 32	1	
			46	REF	
1024498-1			46 - 34	1	
1024499			45	1	
1024499-1			45 - 23	1	
1024499-2			45	1	
1024500			43	2	
1024500-1			NHA 1024500		
1024501			43 - 13	1	
1024502			43 - 23	1	
			44	REF	
1024502-1			NHA 1024502		
1024505			46 - 33	1	
1024510			44 - 3	1	
1024511			44 - 8	1	
1024512			44 - 9	1	
1024513			43 - 33	1	
1024514			43 - 39	2	
1024515			NHA 1024036		
1024516			NHA 1024036		
1024517			NHA 1024036		
1024518			43	2	
1024519			NHA 1024036		
1024520			43	1	
1024521			NHA 1024036		
10397			29 - 25	1	P1
10403			29 - 32	1	P1
10404			29 - 59	2	P1
1042			32 - 59	2	P1
1046088			NHA 1046163		
1046089			40 - 29	1	
1046090			NHA 1046089		
1046091			NHA 1046089		
1046092			40 - 40	1	
1046094			NHA 1067720		
1046096			NHA 1067720		
1046110			12	REF	
1046163			40	1	
1046165			34	71	
			NHA 1077768		
1046166			SEE FTSM1TUR		
1046168			34 - 49	2	
1046169	5841-630-6265		34	4	
1046921-4			NHA 554690		
1046921-5			NHA 554690		
1046921-6			NHA 554690		
1046931			12 - 57	1	
1047514	5960-630-5881		SEE 1N486		
1047579			40 - 26	1	
1047581			NHA 1077764		
			NHA 1077768		
1047586			NHA 1077768		
1047589			NHA 1046089		
1047590			40	11	
1047591			40	9	
1047592			NHA 1067720		
1047594			NHA 1046089		
1047802			34	1	
1057111-2			NHA 1077768		
1060P27-5	5935-309-3253		9	5	P1
			15	2	P1
			17	2	P1
			19	4	P1
			23	1	P1
1060898-5			34	2	
1065287-1			NHA 1077768		
1067416			12	1	
1067720			12 - 15	1	
1067760			SEE 2-95		
1068201			40	1	
1068202-1			SEE 3A1321		
			SEE 3A1321		
			SEE 3A1321		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
1068202-2			SEE 6D620		
			SEE 6D620		
			SEE 6D620		
107-4			39 - 99	1	P1
1072527			34 - 30	4	
1076621		5960-879-7498	34 - 48	4	
10769		5330-809-3225	29	1	P1
1077760			34	2	
1077763			34	1	
1077764			34 - 26	1	
1077765			NHA 1077764		
1077767			34	1	
1077768			34 - 47	1	
1077769			NHA 1077768		
1077837			34	6	
11		5325-275-5887	39 - 56	1	P1
12AU7		5960-508-0740	36	2	P1
12YY1142			39 - 46	2	P1
122-224-200			11 - 10	2	P1
			11 - 13	2	P1
122-244-210		5935-502-3748	11 - 19	1	P1
123			36 - 13	2	
			39 -117	1	
1255			25 - 11	1	P1
12637A1			40 - 48	1	
			42	REF	
1270		3110-293-8674	40 - 82	1	P1
127001		5940-177-1708	11 - 52	2	
1275			33 - 31	1	P1
140126			39 - 65	1	P1
14106-0			26 - 25	1	P1
1417		5940-666-3864	46 - 7	2	
1418		5940-642-1195	3 - 8	2	P1
			6 - 40	3	P1
			11 - 21	2	P1
			11 - 72	8	P1
			12 - 54	1	P1
			23 - 60	1	P1
			40 -103	4	P1
14276			23 - 50	1	P1
14277			18 - 8	1	P1
1430			5 - 32	2	P1
14350			6 - 36	1	P1
			9 - 15	1	P1
			11 - 5	1	P1
14350CCT			36 - 15	1	P1
1468-1			12	1	
14986			30 - 42	1	X1
15008			18 - 16	1	P1
15009			18 - 15	1	P1
15010			18 - 14	1	P1
153532			11 - 61	1	P1
1540AS			5	3	X1
16			46 - 4	1	P1
16297-21			NHA 553680		
17			36 - 16	1	
17F41			11 - 59	1	
171319-10-1B			27 - 27	1	
173341B			27 - 21	1	
1778A			27 - 6	1	
17941-19-000		5841-301-0590	2 - 1	2	P1
2			12 - 41	1	P1
			12	1	P1
2-95		5905-258-6187	39 - 69	1	
2N1131		5960-752-5240	34 - 27	2	
2N332		5960-630-5882	34 - 28	4	
2N697		5960-630-5882	34 - 29	2	
20-18			27 - 38	1	
20H17145-1		5841-504-5687	6 - 41	8	P1
20K14167P27-5		5935-257-7002	9	1	P1
			17	3	P1
20K14314		5935-642-3695	15	3	P1
			19	1	P1
			21	1	P1
20K14512P24-5		5935-502-0006	19	1	P1
			21	1	P1
20191			29	1	P1
2073			27 - 4	1	
21E18219		5940-204-5692	39 -124	1	P1
21223B			4	1	
223B3359			2 - 11	1	P1
			13	REF	P1
23-27			27 - 33	1	
238A2406			23 - 18	1	P1
24			11 - 67	4	P1
2439			27 - 14	1	
25C17			29 - 37	2	
250S			12 - 28	30	
260D			2 - 2	1	
			13	REF	
2665			29 - 22	1	P1
271002			27 - 29	1	
2765-16			39 - 55	1	P1
2765-8			37 - 18	4	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
28		5325-262-7815	26 - 5	2	P1
29 1-4		5940-500-8325	12	9	
3		5325-641-3018	23 - 32	1	P1
			43 - 35	1	P1
3-31383SS		5310-595-5501	31 - 19	1	P1
3A1321			28 - 30	1	
			28 - 49	1	
			30 - 9	1	
3068121			SEE BY101		
3068122			SEE 1N1883A		
3068124			SEE 2N1131		
3068125			SEE 451E2515		
3272		5945-258-3303	11 - 28	2	P1
328			12 - 26	12	P1
336B			27 - 12	1	
337D25			4	1	X1
			4	1	X1
3378		5945-258-3524	11 - 29	2	P1
3379			11 - 27	1	P1
3381AF			27 - 1	1	
3383			6 - 37	1	P1
3384		5945-189-8667	6 - 38	1	P1
3385		5945-295-4113	8 - 27	1	P1
340-111-0144			42	1	
			42	1	
340-111-0145			42	2	
340-120-0146			42	1	
3425-3		5310-596-0001	4	1	
3511			29 - 1	1	P1
3513			29 - 30	1	P1
355-211-0023			42	1	
			42	1	
			42	2	
			42	1	
358			41 - 8	2	
370BB		5910-544-7102	5 - 36	9	P1
			8 - 52	7	P1
370FE		5910-276-6900	4	1	
38E3			27 - 25	1	
39-125			27 - 17	3	
39-135			27 - 39	6	
39-21			27 - 34	2	
4MS1F1			11 - 30	1	P1
402			15	3	P1
403			15	2	P1
			19	1	P1
40301			3 - 22	1	P1
			4	1	P1
40307			4	1	X1
			4	1	
40308			4	1	A
			4	1	
40309			4 - 17	1	P1
			4 - 25	1	
40311			4 - 26	1	
40313			4	1	
40328			4	1	
40329			4	1	
40330			4 - 33	1	
40331			4	1	
40332			4	1	
40333			4	1	
40334			4	1	
40349			4 - 4	2	
40355			4 - 1	2	P1
40356			4 - 2	2	
40359		5841-503-7311	4 - 16	1	P1
40362			4 - 11	1	P1
40396			4 - 12	1	P1
40397			4 - 10	1	
40399			4	1	
406047			SEE 123		
			SEE 123		
406047X			SEE 123		
407390			SEE 9-4		
409011			NHA 1015600		
410080-1			SEE 21E18219		
410080X-1			SEE 21E18219		
411904			SEE 17		
412165			SEE 926B2		
412480			SEE 413003		
			SEE 413003		
412480X			SEE 413003		
412481			SEE 413005		
412481X			SEE 413005		
412529K1BY			NHA 554015		
412546			39 - 62	1	
			39 - 66	1	
			39 - 70	1	
41279			4	1	
413003		5920-199-3973	12 - 4	3	P1
			23 - 2	3	P1
413005		5920-057-2979	23 - 1	3	P1
413197			SEE 127001		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
413197X			SEE 127001		
413258			SEE 926C		
413948			SEE B77G		
414008		5920-296-0530	12 - 3	3	P1
414074			SEE 20K14512P24-5		
414074X			SEE 20K14512P24-5		
414248-1			NHA 554101		
414248-2			NHA 1004417		
414248-3			NHA 1003576		
414439-3		5940-223-4832	NHA 1003576		
414447			11 - 66	1	
414921-4			12	12	
415000-20BLK			NHA 1024502		
			NHA 1024498		
			NHA 1024494		
415000-20BRN			NHA 1024494		
415000-20GREY			NHA 1024502		
			NHA 1024494		
415000-20ORANGE			NHA 1024494		
415000-20PURPLE			NHA 1024494		
415000-20VIOLET			NHA 1024498		
415000-20W			NHA 1024497		
415000-20WHT			NHA 1024494		
415000-22W			NHA 1024500		
			NHA 1024502		
			NHA 1024497		
			NHA 1024498		
415000-24BRN			NHA 1024498		
41748			4 - 3	2	
42-18			27 - 41	6	
42W		5905-518-7930	38 - 23	1	P1
420596			NHA 553703		
420596X			NHA 553703		
421037			30 - 36	1	
			SEE 77R2		
421037X			30	1	
42150			4 - 37	1	
421768			NHA 1004442		
42208			3 - 19	1	P1
42253			4 - 30	2	
423254			NHA 1003576		
423255			NHA 553654		
423288KS			28 - 22	1	
423298			SEE 926C35		
423333K1BY			39 - 64	1	
			39 - 68	1	
			39 - 72	1	
423338KS			26 - 37	1	
			33 - 1	1	
423342K1BY			11	1	
			NHA 553710		
423374			SEE A36G		
423426K1BY			17	3	
423600			NHA 553900		
423715K1BB			37	2	
423715K1BY			11	1	
423716KS1			31 - 10	6	
423716K1BY			11	4	
423717KS1			25 - 31	8	
423718KS			28 - 25	2	
423719KS			26 - 23	1	
			39 - 8	2	
423720K1BB			12	4	
			12	4	
			12	4	
			12	4	
			14	2	
			34	4	
			34	4	
			34	4	
423720K1BY			2	2	
			6	2	
			9	4	
			12	1	
			14	11	
			15	3	
			15	3	
			15	3	
			19	3	
			19	3	
			21	4	
			21	2	
			21	2	
			23	3	
			23	3	
			23	4	
			23	2	
			23	2	
			28 - 76	2	
			39 - 31	2	
			41 - 6	4	
			45 - 22	9	
423721K1BB			12	1	
			12	4	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
423721K1BB			34	4	
423721K1BY			2	1	
			10	2	
			10	2	
			10	2	
			12	20	
			12	4	
			12	4	
			12	6	
			17	8	
			18	2	
			23	1	
			32 - 38	2	
			35	3	
			39 - 35	3	
			39 - 43	3	
			39 -122	2	
			40 - 61	2	
			40 - 79	2	
			40 - 99	2	
			41 - 18	2	
			41 - 28	2	
			NHA 553670		
			NHA 554145		
			NHA 561080		
423722K1BY			2	5	
			2	8	
			3 - 15	12	
			3	4	
			3 - 31	4	
			3 - 35	4	
			11	2	
			11	2	
			11	1	
			NHA 553790		
423731KS			39 - 10	1	
42392			4 - 8	1	P1
424279K1BY			12	1	
424280			NHA 554800		
424280K1BY			11	2	
424281K1BY			11	3	
			12	1	
424286K1BY			12	1	
424287			NHA 554800		
424289			NHA 554800		
424323			30 - 11	1	
424324			NHA 553700		
424325			37 - 30	1	
424353			NHA 1003578		
			NHA 1003550		
			NHA 1024502		
			NHA 1024498		
			NHA 1024494		
424419K1BY			21	1	
424444K1BB			NHA 554999		
424452K1BB			2	3	
424470K1BB			2	1	
424963K1BY			NHA 554019		
424970K1BY			NHA 1077764		
			NHA 1077768		
424973K1BY			NHA 1003811		
424978K1BY			NHA 554742		
43-8			27 - 35	1	
43422			4 - 6	2	P1
43448			4	1	
43450			4 - 15	1	P1
43451			4 - 23	1	
43452		5310-351-1513	4 - 18	2	
43455			4 - 24	1	
43626		5310-596-6024	3 - 24	1	P1
44E2U			27 - 22	1	
450418-15			NHA 553667		
450418X-15			NHA 553667		
450527KS			NHA 561080		
450527K1BY			39 - 48	2	
			39 - 63	1	
			39 - 67	1	
			39 - 71	1	
450528K1BB			38	4	
451E2515			34 - 42	2	
454533-100			12 - 53	1	
454533-11			38	1	
454533-132			12	1	
454533-136			34	4	
454533-137			35 - 13	3	
454533-138			34	4	
454533-97			12 - 51	2	
454533X-100			12	1	
454533X-136			34	4	
454533X-138			34	4	
46-10			37 - 21	2	
460038			NHA 553700		
460039-060			NHA 553790		
460040			NHA 553750		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
460040			NHA 553904		
460040-080			NHA 1015591		
460041			NHA 1015500		
			NHA 554850		
			NHA 1003579		
			NHA 1003578		
			NHA 1003549		
			NHA 553790		
			NHA 553791		
			NHA 553710		
			NHA 1003561		
			NHA 554761		
460041-010			NHA 1015645		
460041-014			NHA 553685		
460041-030			NHA 1003478		
460042			NHA 553830		
			NHA 553830		
			NHA 554846		
			NHA 554847		
			NHA 554848		
			NHA 554852		
			NHA 554853		
			NHA 554854		
			NHA 554851		
			NHA 554849		
			NHA 1015498		
			NHA 1003435		
			NHA 1003578		
			NHA 553730		
			NHA 553790		
			NHA 1015644		
			NHA 553660		
			NHA 1003560		
			NHA 1077767		
			NHA 1077763		
			NHA 553904		
			NHA 1068201		
			NHA 554720		
460042-012			NHA 1004420		
460042-030			NHA 1015591		
460042-034			NHA 554800		
460042-064			NHA 554730		
460042-106			NHA 1003477		
460400K1BB			39	1	
460456K1BY			29 - 26	2	
			29 - 68	2	
460470KS			39 - 30	2	
460470K1BB			14	2	
460470K1BY			36	4	
			NHA 1003477		
460472KS			28 - 57	1	
460472KS1			24 - 5	4	
			28 - 6	4	
460474K1BB			NHA 553700		
460482KS1			25 - 15	2	
460492K1BB			13 - 6	3	
460494KS1			25 - 24	3	
460496KS1			28 - 79	1	
			39 - 12	4	
			39 -107	4	
460496K1BB			34	1	
			43	2	
460498K1BB			34 - 13	4	
			34	1	
			34	4	
			43	1	
			NHA 1024518		
460498K1BY			NHA 554800		
460500K1BY			43 - 27	4	
460502K1BB			NHA 554800		
460524KS			28 - 19	1	
460524KS1			25 - 29	6	
460526KS1			25 - 28	2	
460638K1BY			40 - 53	3	
460640K1BY			40 - 12	2	
460642K1BY			32 - 11	4	
460645K1BY			7	2	
			7	2	
			7	2	
460654K1BB			39 - 38	2	
460654K1BY			6	2	
			7	2	
			7	2	
			7	2	
			7	2	
			7	2	
			14	2	
			23	1	
460656K1BA			46 - 15	1	
460656K1BB			12	4	
			24 - 42	2	
			37	2	
460656K1BY			2	2	
			3 - 2	2	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
460656K1BY			6 - 5	3	
			6	2	
			9	3	
			14	11	
			15	2	
			15	2	
			15	1	
			15	2	
			15	2	
			15	2	
			17	3	
			17	2	
			17	2	
			18	1	
			19	2	
			19	2	
			19	2	
			19	2	
			19	5	
			20	2	
			21	2	
			21	2	
			21	2	
			21	2	
			23	2	
			23	2	
			23	1	
			35	2	
			36	2	
			36	2	
			36	4	
			39	2	
			40 - 6	1	
			41 - 10	2	
460658K1BB			2	2	
			12	3	
			12	3	
			23	3	
			23	2	
			23	2	
460658K1BY			9	4	
			9	4	
			10	2	
			11	3	
			17	2	
			17	2	
			18	6	
			18	6	
			19	3	
			24 - 32	1	
			24 - 34	4	
			30	1	
			32 - 30	2	
			39 -100	1	
			39 -103	1	
			40 - 8	1	
460660K1BB			12	2	
			23	1	
			23	1	
			24 - 1	7	
			24 - 22	1	
			39 - 95	2	
460660K1BY			24	1	
			30	1	
			34	3	
			35	2	
			40 - 74	6	
			45 - 20	9	
460662K1BB			24 - 21	3	
			34	3	
			34	3	
			34	4	
			41 - 4	2	
460662K1BY			24 - 24	4	
			24 - 29	1	
			32 - 33	2	
			34	5	
			43 - 5	REF	
			43 - 8	REF	
460664K1BY			34	1	
460666K1BY			35	2	
460672K1BB			25	2	
460700K1BA			46 - 8	2	
460700K1BY			17	4	
460702K1BB			38 - 13	1	
			39 - 90	3	
460702K1BY			12	2	
			12	2	
			21	2	
			23	3	
			23	4	
			23	4	
			23	2	
			23	4	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
460702K1BY			23	5	
			35	3	
			35	3	
			36	2	
			36	2	
			36	1	
			NHA 553630		
460704K1BY			17	2	
			17	1	
			18	2	
			18	2	
			18	2	
			18	2	
			23	1	
			23	2	
			24 - 19	2	
			39 -121	2	
			40 - 84	4	
			43 - 16	2	
			46 - 19	1	
460706K1BA			46 - 24	2	
			12	1	
460706K1BB			12	1	
			12	2	
			23	3	
			39 - 15	4	
			41 - 15	2	
			2	4	
460706K1BY			9	2	
			9	2	
			9	1	
			9	1	
			10	2	
			10	2	
			10	2	
			12	19	
			12	4	
			12	4	
			12	6	
			12	1	
			12	1	
			12	1	
			12	1	
			12	4	
			17	6	
			23	3	
			32 - 2	4	
			32 - 36	2	
			32 - 56	6	
			34	2	
			34	2	
			35	6	
			36	2	
			39 - 34	3	
			39 - 42	3	
			39 -118	1	
			40 - 70	2	
			40 - 96	2	
			41 - 16	2	
			41 - 27	2	
			38	4	
460708K1BB			NHA 554800		
			12	1	
460708K1BY			12	2	
			39 - 24	1	
460710K1BB			39 - 83	2	
			2	1	
460710K1BY			30 - 3	1	
			32 - 5	3	
			18	3	
460712K1BY			34	2	
460714K1BB			32 - 53	4	
460714K1BY			30 - 4	1	
460716K1BY			40 - 59	2	
460724K1BY			17	4	
460726K1BY			40 - 49	3	
460752K1BY			2	4	
460754K1BY			17	1	
			2	3	
460756K1BY			34	6	
460758K1BB			2	5	
460758K1BY			2	4	
			2	7	
			23	3	
			24	8	
			24	8	
			24 - 18	8	
			43 - 2	REF	
			43 - 11	REF	
			43 - 14	8	
			NHA 553790		
460760K1BY			2	8	
			11	1	
			11	1	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
460762K1BB			34	2	
460764K1BY			11	2	
			11	2	
461065-11			NHA 554690		
461373KS			4	2	
461395KS			44 - 12	2	
461395K1BY			28 - 16	2	
461401K1BB			28 - 3	2	
461590K1BY			39 - 2	1	
461592K1BY			39 - 1	1	
461638KS1			24 - 8	4	
			25 - 18	2	
461638K1BY			12	2	
			40 - 34	2	
			40 - 39	2	
			NHA 553700		
461640KS			33 - 16	1	
			33 - 23	2	
461640KS1			28 - 4	2	
461640K1BY			11	4	
			43	1	
			NHA 1024518		
461646K1BA			46 - 13	3	
			46 - 17	1	
461646K1BY			6	2	
			6	2	
			7	2	
			7	2	
			7	2	
			7	2	
			7	2	
			7	2	
			7	2	
			7	2	
			9	10	
			10	2	
			12	4	
			12	4	
			12	4	
			12	1	
			15	3	
			15	3	
			15	3	
			15	2	
			15	2	
			17	2	
			17	2	
			18	1	
			19	3	
			19	3	
			19	3	
			19	3	
			21	4	
			21	2	
			21	2	
			21	3	
			21	2	
			23	2	
			23	1	
			23	3	
			23	3	
			23	4	
			23	2	
			23	4	
			23	4	
			23	4	
			23	2	
			34	4	
			34	4	
			35	9	
			35	3	
			36	2	
			36	2	
			40 - 11	1	
			41 - 7	2	
461649-006			NHA 1024502		
461650K1BA			46 - 21	1	
			46 - 27	2	
461650K1BY			3 - 10	1	
			6	2	
			6	2	
			9	2	
			9	2	
			9	1	
			9	1	
			9	2	
			11	1	
			12	4	
			12	1	
			12	4	
			12	1	
			12	4	
			12	1	
			17	4	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
461650K1BY			21	2	
			23	1	
			23	2	
			23	2	
			23	4	
			23	2	
			32 - 22	2	
			34	2	
			34	2	
			35	3	
			35	1	
			36	1	
			38	1	
			39 - 88	2	
			39 -119	1	
			40 - 72	2	
			40 -100	2	
			34	4	
461656K1BB			11	1	
461656K1BY			11	2	
			11	1	
			11	2	
			11	1	
			NHA 1024502		
461940-005			NHA 1024502		
461941-003			NHA 1024494		
			NHA 1024497		
461941-005			NHA 1024494		
461941-006			NHA 1024502		
461945-004			NHA 1024520		
461945-005			NHA 1024498		
			NHA 1024498		
461946-070			NHA 1024502		
461952-034			NHA 1024470		
461954-004			NHA 1024500		
461954-006			NHA 1024497		
			NHA 1024470		
461954-044			NHA 1024497		
461954-060			NHA 1024494		
461956-034			NHA 1024494		
461962-104			NHA 1024470		
461996-004			SEE 75-6		
463040			SEE 75-6		
			NHA 553700		
463046			SEE 46-10		
463194	5910-648-8605		SEE RCM19B221K		
463227	5910-648-8604		SEE RCM19B102K		
463257	5910-648-7921		SEE RCM30D103J		
463605K1BB			NHA 553790		
463682K12			45 - 1	6	
463683K12			44 - 11	2	
463802K1BY			40 - 89	2	
464345			SEE 5100-15		
464345X			SEE 5100-15		
464346			29 - 63	1	
464346X			29	1	
464350KS			28 - 66	1	
464356			SEE 5100-37		
464356X			SEE 5100-37		
466493			3	1	
467553			SEE 926A		
468104			NHA 1003434		
			NHA 554690		
			NHA 554808		
468462			SEE A131023		
468462X			SEE A131023		
46970			3	1	P1
46975	5941-342-2246		3 - 41	1	P1
			4	REF	P1
47-19			27 - 40	6	
47-40			27 - 20	2	
47-53			27 - 36	1	
47-66B			27 - 26	2	
47-75			27 - 19	1	
47P10			12 - 18	3	P1
			12 - 22	3	P1
47160	5841-348-0351		3 - 40	1	P1
47247			4 - 9	1	P1
47248			4 - 13	1	P1
472515			NHA 554808		
472934			SEE 29 1-4		
472964			NHA 1003434		
			NHA 554808		
473075			SEE 107-4		
473145			NHA 1003434		
			NHA 554935		
			NHA 554798		
473961			SEE 926C16		
48152	5330-250-6151		30 - 18	1	P1
48154	5340-290-4524		34 - 24	2	P1
48174	5340-290-4524		4 - 20	2	P1
			3 - 20	1	P1
49RSS8M300			11 - 25	1	P1
			40 - 58	1	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
49832H3			38 - 16	1	P1
49833H3			38 - 17	1	P1
49834H1			38 - 18	1	P1
5000-50MI			27 - 37	1	P1
5000G2			27 - 18	1	P1
5000G2S			28 - 36	1	P1
5001-112			28 - 39	1	P1
501AC5		5330-171-8353	12	4	P1
51-205			27 - 23	1	P1
5100-15		5340-473-3715	29 - 13	1	
5100-37		5340-263-5869	29 - 44	1	
5101-25			30 - 26	1	P1
5101-37		5340-282-0826	29 - 8	1	
52410-025			5 - 5	10	P1
			6 - 3	9	P1
			8	6	P1
53U17952			7 - 8	1	P1
			7 - 16	1	P1
			7 - 25	1	P1
			7 - 36	1	P1
			7 - 42	1	P1
			7 - 50	1	P1
			7 - 60	1	P1
			7 - 68	1	P1
531594			SEE 77R3XR1E		
531594X			SEE 77R3XR1E		
533228-101			SEE 77R4XR1E		
			SEE JLU1011		
533228-102			SEE JLU1021		
533228-103			SEE JLU1031		
533228-104			SEE JLU1041		
533228-105			SEE JLU1052		
533228-501			SEE JLU5011		
533228-502			SEE JLU5021		
533228-503			SEE JLU5031		
533228X-101			SEE JLU1011		
533228X-102			SEE JLU1021		
533228X-103			SEE JLU1031		
533228X-104			SEE JLU1041		
533228X-105			SEE JLU1052		
533228X-501			SEE JLU5011		
533228X-502			SEE JLU5021		
533228X-503			SEE JLU5031		
533905			NHA 553905		
54B16022			30 - 41	1	P1
544881			2 - 31	3	P1
551475-11			SEE 2		
551475-12			SEE 10		
551475-13			SEE 11		
551475-15			SEE 16		
551475-2			SEE 3		
551475-3			SEE 8		
551475-9		5325-266-6623	SEE 6		
551475X-11			SEE 2		
551475X-12			SEE 10		
551475X-13			SEE 11		
551475X-15			SEE 16		
551475X-2			SEE 3		
551475X-3			SEE 8		
551475X-9			SEE 9		
551734		5920-284-7647	SEE HCM		
551734X			SEE HCM		
551849-3			NHA 554726		
551849-4		5315-834-3728	29 - 67	2	P1
			44	2	P1
551849X-4			29	2	P1
			44	2	P1
553355			NHA 554661		
553500			2	1	P1
553501		5841-505-1253	5 - 3	1	P1
553501-1			NHA 553501		
553502			5	1	X1
553503			NHA 554911		
553507			5 - 44	1	X1
553514			9 - 62	1	X1
			9	1	X1
553514-1			NHA 553514		
553514-2			NHA 553514		
553514-3			9	1	
553514-5			9	1	
553514-6			9	1	
553528			SEE 52410-025		
553621		5895-338-1661	18 - 7	1	X1
553622			18 - 26	1	P1
553628			NHA 553637		
553630			14	1	P1
553637		5841-320-7359	23 - 37	1	P1
553646		5841-346-4812	23 - 33	2	P1
553649			14 - 7	1	M1
553651		5841-320-7344	23 - 6	1	P1
553652		5841-342-2149	23	2	P1
553654			23 - 41	1	P1
553654-1			NHA 553654		
553654-2			NHA 553654		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
553656		5905-284-3060	23	1	P1
553657			23 - 44	1	P1
553660		5841-505-1234	14 - 4	1	P1
			18	REF	P1
553667			23	1	P1
553670		5841-320-7476	14 - 8	1	P1
			23	REF	P1
553671		5841-503-8594	23 - 39	1	P1
553673		5841-518-6044	23 - 40	1	P1
553674		5841-346-4756	23 - 35	1	P1
553676		5305-207-9883	12 - 2	1	P1
			23 - 5	1	P1
553677		5920-503-2971	12 - 1	1	P1
			23 - 4	1	P1
553680			23 - 59	1	X1
553684		5841-574-0302	23 - 34	2	P1
553685		5841-315-0286	11	1	P1
553686		5841-536-9280	23 - 38	1	P1
553689		5910-669-1596	6	1	P1
			23 - 14	1	P1
553690		5841-572-9875	14 - 2	1	P1
			15	REF	P1
553691			11 - 50	2	M1
553692			15 - 49	1	X1
553693			NHA 553692		
553694		5841-320-7357	15 - 11	1	X1
553697		5340-200-8344	15	1	P1
553699			15 - 18	1	P1
553699-1			NHA 553699		
553699-2			NHA 553699		
553700			39	2	P1
			40	REF	P1
553710			14 - 6	1	P1
			21	REF	P1
553720			NHA 553732		
553730			14 - 5	1	P1
			19	REF	P1
553732			21 - 52	1	X1
553733		5841-518-6045	21 - 11	1	P1
553740			NHA 553764		
553749		5970-285-0174	11 - 7	1	P1
553750			2	1	X1
553760			2 - 15	1	P1
			3	REF	P1
553762		5307-297-3098	21	1	P1
553763		5841-332-4733	21 - 1	1	P1
553764			19 - 40	1	X1
553765		5935-309-3125	19 - 15	1	P1
553766		5841-320-7229	12 - 50	2	X1
			NHA 553790		
553769		5930-549-0356	12 - 48	1	P1
553770		5841-505-2610	2 - 25	1	P1
			8	REF	P1
553775			NHA 553769		
553780		5841-505-2700	2 - 24	1	P1
			6	REF	P1
553783		5841-320-7226	14 - 1	1	P1
553784			24 - 27	1	P1
			43 - 4	REF	P1
553787-1			NHA 553783		
553787-2			NHA 553783		
553787-3			NHA 553783		
553789			14 - 9	1	M1
553789X			14	1	M1
553790		5841-505-3453	2 - 29	1	P1
			12	REF	P1
553791			18	1	P1
553792			18 - 22	1	X1
553793		5970-285-0175	11 - 8	1	P1
553794		5841-327-4516	2 - 30	3	P1
			12	3	P1
553796		5841-346-4759	2 - 14	1	P1
553800			24	1	P1
553810		5841-219-7853	28 - 58	1	P1
553830			6 - 4	1	X1
			7	REF	X1
553830-501			6	1	
			7	REF	
553836			NHA 1004364		
553840			2 - 27	1	X1
			11	REF	X1
553873		5841-217-6909	3	1	X1
553874			3 - 36	1	X1
553876			3 - 39	1	X1
553892-2		5306-325-0592	11	1	P1
553892-3		5306-325-0591	11	1	P1
553900			37	1	P1
553901		5841-320-7227	37 - 19	1	P1
553902		5355-667-6017	37	1	
553904		5841-564-8670	37 - 32	1	X1
			38	REF	X1
553905		5841-505-2900	38 - 36	1	X1
553905-1			NHA 553905		
553906			NHA 553905		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
553909			NHA 553905		
553910			38 - 15	1	M1
553911			37 - 23	1	P1
553912		5355-667-6016	37	1	
553913		5355-667-6040	37	1	
553914		5355-667-7167	37	1	P1
553915			37	1	
553916			37	1	
553917			37	1	
553918			37	1	P1
553928		5841-505-3466	3	1	X1
553929		5960-296-4110	3 - 11	1	X1
553931		5841-090-5234	2 - 12	1	P1
553940			3	1	X1
553950			3 - 26	1	X1
553954			SEE LB17596		
553956		5960-549-0098	3	1	P1
553959		5841-516-0134	11	2	X1
553962		5841-698-9842	8	1	P1
553968			8 - 35	2	P1
553980		5841-320-7402	39	1	P1
			41	REF	P1
553981		5841-505-2360	41 - 29	1	
553982			NHA 553981		
553983			NHA 553981		
553984			NHA 553981		
553985			NHA 553981		
553986		5841-320-7348	41 - 14	1	
553987		5841-320-7403	41 - 26	1	
553987-1			NHA 553987		
553987-2			NHA 553987		
553990		5841-320-7250	41 - 20	1	
553991			NHA 553990		
553992		5995-364-8194	12 - 42	1	M1
553992-1			NHA 553992		
553993			NHA 553990		
553994		5841-320-7485	41 - 24	2	
553995			41 - 19	1	
553996		5841-519-7296	41 - 23	1	P1
554002-1			12 - 36	1	M1
554002-2			12 - 37	1	M1
554002-3			12 - 38	1	M1
554002-4			12 - 39	1	
554005		16604730-540-0275	39 - 4	1	X1
554006			NHA 554005		
554007			NHA 554005		
554008			39 - 93	1	P1
554009			39 - 11	1	P1
554010		5841-320-7194	39	1	P1
554014			39 - 37	1	M1
554014X			39	1	M1
554015			40 -107	1	P1
554016			NHA 554015		
554017		5841-327-4515	40 -106	1	P1
554019		5960-300-2364	40	1	P1
554020			NHA 554019		
554023			40 - 55	1	
554024			40 - 56	1	
554025		5977-376-4951	40	1	P1
554026			40 - 63	2	X1
554029		5841-565-8673	2 - 7	2	P1
554030		5841-565-8673	40	1	P1
554031		5841-505-3698	40 - 87	1	P1
554033			NHA 554031		
554036			SEE 1270		
554037		5950-646-4338	40 - 80	1	P1
554038			12 - 33	1	
554039		16605310-327-4605	12	4	X1
554041		5841-320-7356	40 - 69	1	P1
554042		5841-342-2083	40 - 95	1	P1
554043			NHA 554042		
554044			NHA 554042		
554045			40	1	X1
554045-1			NHA 554045		
554046			40 - 88	1	P1
554047			NHA 554046		
554048			NHA 554046		
554049		5960-665-1676	40 - 93	1	P1
554050			NHA 554049		
554051			NHA 554049		
554052		5841-662-1075	40 - 92	2	P1
554053			SEE A920		
554076			38	4	P1
554077			NHA 1003856		
554078-1			NHA 554078		
554079		5841-320-7349	39 - 33	1	P1
554081		5841-320-7219	39	1	P1
554082		5841-565-8282	39 - 27	1	P1
554083		5841-527-1132	39 - 23	1	P1
554084		5970-642-8234	39 - 19	1	P1
554085		5970-319-4979	39 - 18	1	P1
554086			39 - 44	1	P1
554087			39 - 57	3	P1
			NHA 561080		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
554087-1			NHA 554087		
554088			40 - 67	2	P1
554089			NHA 554088		
554090			NHA 554088		
554091		5841-330-9894	40 - 68	3	P1
554092		5841-333-9884	40 - 52	1	P1
554093		5841-530-3109	39 - 40	1	P1
554096			39 - 3	1	P1
554097		5995-090-1073	39 - 49	1	M1
554097-1			39	1	
554098		5841-332-4823	39 - 52	1	M1
554100			37 - 24	1	M1
			38	REF	M1
554101		5841-342-2278	38 - 14	1	P1
554101-1			NHA 554101		
554101-2			NHA 554101		
554101-3			NHA 554101		
554102			NHA 554101		
554103			37	1	
554103X			37	1	
554104			37 - 31	1	M1
554104X			37	1	M1
554105			NHA 554101		
554106		5841-505-2631	38	1	P1
554118		5340-598-2192	30 - 33	2	X1
554122		5841-035-4513	30	1	P1
554123-1		5841-327-4512	30 - 31	1	X1
554123-2		16605305-327-4510	30	1	X1
554124		16605310-333-9909	30 - 32	1	X1
554125		5841-212-5919	30	REF	P1
			34 - 19	1	P1
554125-1			NHA 554125		
554125-2			NHA 554125		
554125-3			NHA 554125		
554125-4			NHA 554125		
554125-5			NHA 554125		
554126		5841-509-7327	30 - 22	1	P1
554126-1			NHA 554126		
554126-2			NHA 554126		
554127			30 - 24	1	
554127-1			NHA 554127		
554127-2			NHA 554127		
554128		5841-217-0480	30 - 23	1	P1
554129		5841-289-7634	30 - 30	1	X1
554130		5841-099-3884	24 - 13	1	P1
			43 - 10	REF	P1
554131		5841-320-7474	30 - 35	1	
554132			30	1	
554132-996L			NHA 554132		
554132-996R			NHA 554132		
554132L		5841-216-4879	30 - 1	1	P1
554132R		5841-216-4878	30 - 2	1	P1
554135			30 - 16	2	M1
554136		5310-286-3200	30 - 21	1	P1
554137		5310-637-2184	30 - 28	1	X1
554138			30 - 19	2	P1
554139		5310-208-3084	30 - 20	1	P1
554141		5841-320-7185	30 - 34	1	X1
554142			NHA 554130		
554143			NHA 554130		
554144			24 - 14	1	
554145			25 - 49	1	P1
554146		5940-549-9350	NHA 554145		
554147			NHA 554145		
554151-1			30	1	M1
554151-1-1			NHA 554151		
554151-2			30	1	M1
554151-2-1			NHA 554151		
554155		5821-212-5920	26 - 21	1	P1
			30	REF	P1
554155-1			NHA 554155		
554155-2			NHA 554155		
554155-3			NHA 554155		
554155-4			NHA 554155		
554155-5			NHA 554155		
554610			7 - 69	1	X1
554610-1			NHA 554610		
554611		5841-534-1320	7	1	X1
554611-1			7	1	
			NHA 554611		
554611-2			7	1	
			NHA 554611		
554630		5841-552-1615	26 - 24	1	P1
			31	REF	P1
554637		5310-141-3254	31 - 20	1	P1
554639-1		5310-141-3253	31 - 13	AR	P1
554639-2		16605310-141-3252	31 - 14	AR	P1
554639-3		5310-141-3251	31 - 15	AR	P1
554640		5841-625-9202	31	1	P1
554641			31 - 7	1	X1
554645			31 - 5	2	X1
554646			26 - 8	1	X1
554647			26 - 7	1	X1
554648			26 - 6	2	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
554649		5841-216-4889	26 - 27	2	P1
554650			31 - 8	1	P1
			32	REF	P1
554650-1			NHA 554650		
554652		5305-208-5156	26 - 22	1	P1
			34	2	P1
554660		5841-212-5923	32	1	P1
554661		5841-212-5921	32	1	P1
554667		5841-318-2329	32 - 48	7	P1
554667-1			NHA 554667		
554667-2			NHA 554667		
554668			11 - 65	1	M1
554670			26 - 33	1	P1
			33	REF	P1
554671		5841-678-4064	32 - 50	1	P1
554672		5841-212-7330	32 - 47	9	P1
554673			32 - 49	1	P1
554676		5841-318-7696	32 - 60	1	P1
554677		5841-040-9708	32 - 1	1	P1
554677-1			NHA 554677		
554678			32 - 52	1	P1
554679		5305-298-4682	32 - 51	4	P1
554681		5340-320-7401	32 - 55	1	P1
554682		5841-024-5404	32 - 35	1	P1
554686		5841-306-4473	33	1	P1
554687		5841-217-0481	33 - 49	1	X1
554688		5841-339-0753	33 - 48	1	X1
554689		5841-320-7398	33 - 17	1	P1
554690			36 - 29	1	X1
554690-1			NHA 554690		
554690-2			NHA 554690		
554690-4			NHA 554690		
554690-6			NHA 554690		
554690-8			NHA 554690		
554692			NHA 554689		
554693		5841-216-4884	28 - 1	2	P1
			33 - 21	2	P1
554694		5841-287-8874	26 - 32	2	P1
			33 - 18	2	P1
554695			33 - 24	1	P1
554696		5841-289-7633	33 - 42	1	P1
554697			33 - 40	1	P1
554698		5841-306-4494	33 - 35	3	P1
554699		16605315-291-4386	33 - 14	4	P1
554700		5841-284-6827	24	1	P1
554701		5340-286-7991	33 - 34	1	P1
			34	1	P1
554704		5841-320-7399	33 - 28	1	
554705		5841-025-7351	33 - 25	1	P1
554706		5841-519-6478	33 - 50	1	P1
554707		5340-090-0030	33 - 6	2	P1
554708			25 - 32	1	P1
554710		5841-341-5220	24	1	
			25	REF	
554711			25 - 2	1	X1
554712			25 - 5	2	X1
554713			NHA 554715		
554714			NHA 554715		
554715		5841-341-5220	25	1	
554716			NHA 554715		
554717			25 - 3	1	X1
554718			25 - 8	1	P1
554720			34 - 12	1	P1
			35	REF	P1
554723		5841-339-0752	28 - 14	1	P1
554725			24 - 9	1	P1
554725-1			NHA 554725		
554726		5841-216-4888	25 - 9	1	P1
554726-1			NHA 554726		
554726-999			NHA 554726		
554727		5841-216-4877	25 - 10	1	P1
554728		5841-216-4887	25 - 12	3	P1
554729		5841-216-4895	25 - 13	1	
554730		5841-538-5815	34 - 14	2	P1
			36	REF	P1
554730-501			36	REF	P1
554731		5841-216-4890	25 - 40	1	P1
554732		5841-332-7285	25 - 36	1	P1
554735		5841-024-5399	25 - 44	1	P1
554736		5841-327-4610	25 - 19	1	P1
554737		5841-332-4812	25 - 20	1	P1
554738		5841-216-4852	28 - 69	1	P1
554739		5841-528-0827	28 - 65	1	P1
554740		5841-024-5403	28 - 78	1	P1
554741		5841-320-7188	28	1	P1
554741-1			28 - 72	1	
554741-2			NHA 554741		
554742		5841-035-4508	25 - 23	1	P1
554743			NHA 554742		
554744			NHA 554742		
554745			28 - 45	2	P1
			28 - 70	1	P1
554746		5841-516-0112	28 - 71	1	P1
554747		5841-327-4608	28 - 64	1	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
554751			24 - 12	1	P1
554752-1		5306-693-7045	28 - 24	1	P1
554752-2		16605306-637-1863	28 - 23	1	P1
554753		5841-528-1244	28 - 33	1	P1
554754		5841-035-4509	25 - 50	1	P1
554755		5841-503-8693	24 - 4	1	P1
554756			NHA 554754		
554757-1		5841-217-6904	24 - 10	AR	P1
554757-2		5841-217-6905	24 - 11	AR	P1
554758		5841-093-6488	25 - 14	4	P1
554759		5841-024-5401	25 - 33	1	P1
554761		5995-040-9709	11	1	M1
554762		5310-595-9949	28 - 63	1	P1
554763		5310-595-7943	28 - 10	1	P1
554765		5841-024-5400	28 - 43	1	P1
554765-1			NHA 554765-999		
554765-2			NHA 554765		
554765-999			NHA 554765		
554767		5841-332-4834	28 - 68	1	P1
554768		5841-528-0841	28 - 52	1	P1
554769-1		5841-320-7416	28 - 55	3	P1
554769-2		5841-216-4893	28 - 54	3	P1
554770		5841-099-3874	35 - 16	1	P1
554770-1			NHA 554770		
554770-2			NHA 554770		
554770-3			NHA 554770		
554771		5841-216-4891	28 - 44	1	
554772		16605310-334-9729	28 - 11	1	P1
554773		16605310-514-6693	28 - 13	1	P1
554774		5841-217-0482	28 - 12	1	P1
554775		5841-099-3864	25 - 38	1	P1
554776		5841-289-7632	28 - 15	1	P1
554777		5841-035-4510	28 - 5	1	P1
554778		5841-339-0754	28 - 17	1	P1
554780		5841-339-0757	25 - 48	1	P1
			26 - 1	REF	P1
554782		5310-025-7345	NHA 553800		
554784			24 - 31	1	P1
554785			24 - 33	1	P1
554788			24 - 28	1	P1
			43 - 7	REF	P1
554789			24 - 15	1	P1
			43 - 1	REF	P1
554790			24 - 17	1	P1
554795-1			NHA 1015640		
554795-2			NHA 1015640		
554798			35 - 12	1	P1
554798-1			NHA 554798		
554798-2			NHA 554798		
554800			24	1	X1
			34	REF	
554803		5995-367-5871	36 - 14	1	M1
554803-1			NHA 554803		
554804			36	1	P1
554807		5841-332-4741	35	6	P1
554808			NHA 1003811		
554808-1			NHA 554808		
554808-2			NHA 554808		
554810			NHA 554896		
554813			NHA 1003811		
554822			34 - 15	1	P1
554822-1			NHA 554822		
554822-2			NHA 554822		
554830			NHA 554836		
554830-1			NHA 554830		
554830-2			NHA 554830		
554831		5841-040-9707	26	1	P1
554835			11 - 75	1	X1
554839			24 - 41	1	M1
554840			25	1	A
554843			NHA 554911		
554846		5841-519-3051	7	1	P1
554847		5841-519-3016	7	1	P1
554848		5841-505-1243	7	1	P1
554849		5841-519-3053	7	1	P1
554850		5841-504-2731	2 - 26	1	P1
			9	REF	P1
			10	REF	P1
554851		5841-505-3701	7	1	P1
554852		5841-505-3702	7	1	P1
554853		5841-505-3703	7	1	P1
554854		5841-519-3054	7	1	P1
554855			SEE 12637A1		
554855-2		5841-327-4525	40	1	P1
			42	1	P1
554860		5841-528-1071	40 - 83	1	P1
554867		5841-028-9612	34 - 20	1	P1
554868			NHA 554867		
554869			NHA 554867		
554870			NHA 1003600		
554876			2 - 33	1	M1
554879		5310-829-2620	2	1	P1
554880			2	2	P1
554880-1			NHA 554880		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
554880-2			NHA 554880		
554880-3			NHA 554880		
554881			12	1	P1
554882		5995-258-3666	2	1	P1
554883		5841-219-7444	2 - 19	1	P1
554884			2 - 20	1	P1
554885			2 - 21	1	P1
554886		5841-320-7358	2	4	P1
554887		5841-284-6532	2 - 18	1	P1
			31 - 23	1	P1
554888-1		5841-216-4885	2 - 16	1	P1
554888-2		5841-318-7700	2 - 17	1	P1
554889		5841-505-2893	2 - 4	1	P1
554890			25 - 39	1	X1
			28	REF	X1
554891			NHA 554889		
554892			NHA 554889		
554892-1			2 - 6	1	
554896			11 - 74	1	X1
554900			11	1	P1
554902		16605975-642-7422	5	1	X1
			8	1	X1
554903		5340-598-4053	37 - 29	2	P1
554904			SEE A822-2		
			SEE A822-2		
554905			SEE A886-1		
			SEE A886-1		
554906			SEE A882-8		
			SEE A822-8		
554908			5 - 42	1	X1
			8 - 50	1	X1
554910			11	2	P1
554911		5841-320-7228	6 - 1	1	P1
554918			40 -102	3	P1
554922			18 - 3	1	P1
554923			18 - 4	1	P1
554926			32	1	X1
554927		5841-024-5406	32 - 44	2	P1
554928		5841-024-5407	32 - 45	2	P1
554929		5310-208-8902	32 - 42	1	P1
554930		5310-298-3059	32 - 43	1	P1
554931		5841-217-6906	32 - 46	1	P1
554932		16605940-216-4851	32 - 17	1	P1
554934		5841-333-2705	32 - 15	7	P1
554935		5841-503-8198	32 - 10	1	P1
554935-1			NHA 554935		
554935-2			NHA 554935		
554935-3			NHA 554935		
554936		5841-504-5099	32 - 14	14	P1
554936-1			NHA 554936		
554936-2			NHA 554936		
554939		5330-809-3220	6	2	P1
			11	2	
			11	2	
554940		5905-258-6348	23	2	P1
554941		5841-320-7217	11 - 22	1	P1
554941-1			11	1	
554941-2			11	1	
554941-3			11	1	
554942		5841-346-4752	11 - 60	1	P1
554943			NHA 554942		
554945			NHA 554942		
554947		5841-519-3052	11	1	P1
554947-1			11	1	
			NHA 554947		
554947-2			11	1	
			NHA 554947		
554948			28 - 35	1	
554950			24 - 44	1	P1
			25	REF	P1
554951			NHA 554122		
			NHA 554122		
554952		5841-557-5379	11	1	P1
554955			11 - 58	1	X1
554955-2			11	1	
554958		5841-320-7385	11 - 26	2	X1
554959-10			11	1	P1
554962		5970-285-0149	12 - 52	1	P1
554963		16605975-317-2850	39 - 26	1	P1
554964		6230-535-4841	37 - 20	1	P1
554965			6 - 15	1	M1
554965-1			6	1	
554966		5935-215-2561	2 - 8	1	P1
554967			NHA 553836		
554999			26	1	P1
554999-2			NHA 554999		
554999-3			NHA 554999		
554999-4			NHA 554999		
554999-5			NHA 554999		
56-22			27 - 28	3	
560004			NHA 1015558		
560024-103M			SEE 91P10302		
560026-152J			10 - 10	1	P1
560026-252J			10 - 9	1	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
560027-602J			10 - 7	1	P1
560027-702J			10 - 8	1	P1
560053			SEE X1942X		
560054-4K1BB			12	3	
			23	4	
560054-4K1BY			9	4	
			11	4	
			11	4	
560054-6K1BB			12	1	
560058-13			34	1	P1
560058-20			NHA 554850		
			NHA 1003578		
			NHA 1003549		
			NHA 1015644		
560058-22			NHA 1015644		
			NHA 554730		
560058Y20			NHA 554847		
			NHA 554848		
			NHA 554852		
			NHA 554853		
			NHA 554854		
			NHA 554851		
			NHA 554849		
			NHA 1003477		
			NHA 553790		
			NHA 553710		
			NHA 1003856		
			NHA 554761		
560058Y20-100			NHA 553904		
560058Y22			NHA 1015500		
			NHA 553830		
			NHA 553830		
			NHA 1015498		
			NHA 1003435		
			NHA 1003477		
			NHA 553730		
			NHA 553660		
			NHA 553791		
			NHA 1003560		
			NHA 554720		
560058Y22-010			NHA 1004420		
560058Y22-024			NHA 554800		
560058Y5			NHA 1015559		
560085-3			SEE 1042		
560220-4B			NHA 1003434		
560222			SEE 1060P27-5		
560275-11			44 - 7	2	
560305			SEE 1418		
560324-2		5330-618-9668	11	8	P1
560324-3		5330-809-3221	11	2	P1
			11	2	
560345-1			SEE 5101-25		
560345-2			SEE 5101-37		
560346-2			SEE 402		
560346-3			SEE 403		
560360-060			NHA 1024497		
560369			NHA 554640		
560399-16			29 - 3	1	
560399-22			SEE 5001-112		
560415-10K3			NHA 554892		
			NHA 1003687		
560415-2K3			NHA 554742		
			NHA 1022169		
			NHA 1022169		
			NHA 1015507		
560415-6K3			27 - 10	1	
			27	1	
			NHA 1003430		
			NHA 1003820		
560415-7K3			NHA 553987		
560435-7			NHA 1003431		
560436			NHA 1003684		
560439-2			NHA 554896		
560442			NHA 553671		
560443-3			NHA 1015636		
			NHA 1015636		
560444		5945-258-7717	SEE B7542		
560445-1			SEE R1543		
			SEE SW1459		
560445-12			SEE SW1460		
560445-3			SEE R1541		
560445-5			SEE R1539		
560445-6			SEE R1538		
560445-7			SEE R1537		
560445-8			SEE W2972		
560446-1			SEE 15008		
560446-2			SEE 15009		
560446-3			SEE 15010		
560448			SEE 9061		
560449-1			6 - 29	1	P1
560449-2			18 - 9	1	P1
			19 - 32	1	P1
560449-4			11 - 39	1	P1
560455		5950-646-2868	SEE TE5684		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
560456		5950-538-6793	SEE TE5781		
560458		5950-648-4906	SEE TE6002		
560460		5920-284-7652	23 - 3	2	P1
560467-10B			NHA 554770		
560467-5B			NHA 554690		
			NHA 1004430		
560467-6B			NHA 554101		
560467-7B			NHA 553514		
			NHA 554770		
560467-8			NHA 1003809		
560470			NHA 553699		
560478			SEE TL49		
560483-12			SEE XF2670		
560483-17			SEE XFS52609		
560483-19			SEE XFS2611		
560483-6			SEE XF2653		
560483-8			SEE XF2657		
560489-1			15	4	
560501			SEE 3384		
560509		5945-258-3371	SEE 3383		
560510		5950-507-7959	SEE TE5696		
560511		5950-509-1210	SEE TE5695		
560513			SEE A94012RGB1D1		
560513-1			14 - 10	1	
560534-3K1BY			NHA 1003176		
560536-1A			NHA 553905		
560536-2A			NHA 553905		
560536-3A			NHA 553905		
560550B049-0312			28 - 34	1	P1
560550B049-0437		5315-809-2912	28 - 53	1	P1
560550B049-0500		5315-809-2914	30 - 29	1	P1
560550B059-0500			30 - 38	1	P1
560553-3			NHA 554101		
560554			SEE 6575-1-1D		
560557			SEE 3385		
560558			SEE 4MS1F1		
560559			SEE B2133		
560561			SEE 3272		
560562			SEE 3378		
560567			SEE C8778-1		
560568			SEE C8773-1		
560570		5950-538-7076	SEE TE5683		
560573		5950-646-2824	SEE TE5997		
560574		5950-646-1268	11 - 44	1	P1
			SEE TE5690		
560575		5950-648-6879	SEE TE5691		
560576		5950-509-1211	SEE TE6442		
560577		5950-547-8389	11 - 47	1	P1
			SEE TE5996		
560579		5950-648-6609	SEE TE5701		
560580		5950-547-8331	SEE TE5702		
560581		5950-648-6880	SEE TE5699		
560584		5940-581-2808	SEE 1430		
560590-2			SEE 14350		
560590-4			SEE 14350CCT		
560594-2			SEE AY201S1B		
560596			28	1	
560596-1			SEE 1A783		
560598		5935-257-7133	7 - 8	1	
			SEE 53U17952		
560600			SEE 20H17145-1		
560601			SEE 5000GZS		
560603			SEE 87		
560608			NHA 1003543		
560615K1BY			NHA 554015		
560617-1			SEE M7SLRN		
560617-3			SEE M7SLRH19		
560617-5			SEE M7PLSH19		
560617-7			SEE M7PLRN		
560617-9			SEE M7SLSH19		
560620			NHA 553769		
560623-4			SEE A15SH		
560623-5			SEE A15S		
560628-20K3			30 - 37	1	
560628-22K3			30 - 6	3	
560628-24K3			SEE 68NM02		
560628-26K1BY			3	2	
560629			SEE 223B3359		
560629-1			13 - 14	1	
			13	1	
560629-2			13 - 13	1	
560629-3		4140-568-9185	13 - 19	1	
560629-4			SEE 77R4		
560629-5		4140-341-8470	SEE A201CW		
560629-6			13 - 18	1	
560629-7			13	1	P1
560629-8		4140-699-2256	13 - 17	1	
560629-9		16606105-521-1136	13 - 15	1	P1
560633			28	1	P1
560633-1			SEE A1A752		
560635			30 - 7	1	P1
560635-1			SEE 1A1150		
560636			SEE X1990		
560637			SEE 68NTE054		

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	CLASS CODE	SERIAL OR PART NO.			
560645			SEE B546		
560646			SEE B543		
560685-9			NHA 1024518		
			NHA 1024520		
560686		5945-295-4927	SEE 3379		
560687			SEE 42W		
560688		5930-549-0940	SEE 49832H3		
560689		5930-548-3381	SEE 49833H3		
560690		5930-548-7786	SEE 49834H1		
560691		5930-548-6245	38 - 25	1	P1
560692		5930-548-7794	38 - 24	1	P1
560693			SEE 90		
560694-4		5910-648-9332	38 - 35	1	P1
560694-5		5910-544-6349	12 - 56	8	P1
560696			SEE 8DW53AAY17		
560697			NHA 553901		
560699			SEE W2973		
560701			SEE 926G1		
560702-1K1BY		5305-809-9464	2	4	P1
			3 - 13	12	
			3	4	
			3	3	
			3 - 33	4	
			3 - 37	3	
560702-2K1BY			3 - 29	4	P1
560702-4K1BY			2	4	P1
560703-1			SEE 90BC		
560703-2			SEE 901LBC		
560705			SEE 122-244-210		
560707			SEE TL56		
560708			SEE D1047		
560709			SEE 122-224-200		
560713		5940-204-8356	SEE 24		
560715			SEE 49RSS8M300		
560719-1			SEE A10S		
560719-2			SEE A10P		
560719-3			SEE A10H		
560720		5935-310-4228	SEE 153532		
560722-1			18 - 23	1	P1
			21 - 44	1	
560723		5841-332-4729	SEE 17F41		
560724-4			SEE GP1000-332-03		
560732-4			SEE 2765-8		
560732-7			SEE 2765-16		
560735-1			SEE X1980XA		
560735-2			NHA 1024518		
560738			SEE 1SM1		
560739			SEE AY201S3B		
560740			NHA 1015591		
560740-212			NHA 1003578		
560741			SEE 8575		
560742-2			SEE GP100-331		
560742-3			SEE GP500-331-03		
560742-4			SEE GP1000-332-03		
560744			SEE 8500		
560745			SEE 880		
560749-2			NHA 554650		
560752-6			SEE 17941-19-000		
560766		6850-598-5802	SEE X1009-12592		
560770-6-220			NHA 1015689		
560776-2		5970-564-9288	41 - 12	4	
560776-3		5330-599-8124	41 - 13	2	
560778			SEE Y4802		
560780		5310-596-9245	SEE 250S		
560781-3			SEE 501AC5		
560788			SEE E511		
560788K1BY		5640-809-2224	SEE E511K1BY		
560798L			SEE S1P0BDSX114		
560798R			SEE S1PPBDSX114		
560802			SEE HML3		
560803		3110-555-5532	SEE 1275		
560806-2		5310-808-7962	3	3	
			3 - 38	3	
560807			SEE 77R8X1E		
560808			SEE 1255		
560811-2K3			28 - 42	1	P1
			28 - 61	1	
560814			SEE IPC4306		
560815			SEE IPC6879		
560816			SEE IPC4307		
560817		5340-334-3041	SEE IPC9706		
560819			SEE IPC4303		
560821			SEE IPC4302		
560828		5841-099-0019	34 - 22	1	X1
560829			SEE 1468-1		
560830			8	2	P1
560833			9 - 49	1	P1
			23 - 22	1	P1
560834			SEE XG1954N		
560835			SEE TE5787		
560836			NHA 554908		
560838			SEE HSM4PDT		
560839		5945-539-5254	SEE HSM2PDT		
560840-10			SEE 14276		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
560840-12			SEE 14277		
560844-5			SEE A5345-328		
560845-104			SEE JU1041P2040		
560846-13			NHA 554145		
560846-5			NHA 1024499		
560846-6			NHA 554822		
560847		5950-645-9963	SEE D165		
560848		5841-503-7499	SEE 1003485		
560850			11	3	P1
			NHA 1003576		
			NHA 1003434		
			NHA 554690		
			NHA 1003809		
560851		4140-274-5798	SEE 238A2406		
560891-2			NHA 553900		
560891-4			NHA 554803		
561001			NHA 1015504		
561002-250			11 - 35	1	
561002-274			SEE JR21JE274PORM1PC1		
561002-364			SEE JR21JE364PORM1PC1		
561002-4R1			SEE JR21JM4-1PORM1PC1		
561002-454			SEE JR21JE454PORM1PC1		
561003-11-044			NHA 554650		
561003-8			NHA 1003766		
561005-1			SEE MRE7SG		
561005-2			SEE MRE7PG		
561007			SEE 140126		
561008			SEE 6875		
561009		5960-280-4029	SEE 926C46		
561010			SEE PSX-25		
561012-1			NHA 1003578		
561012-1AB130			NHA 554730		
561012-1AB824			NHA 554803		
561012-1CD140			NHA 554650		
561012-1CE034			NHA 554650		
561012-1DE140			NHA 554650		
561012-2AB			NHA 1015591		
561012-2AB104			NHA 554151		
561013			SEE RH25-250ROG		
561013-1			SEE RH25-25000G		
561013-5			SEE RH25-15000H		
561015			SEE 20K14314		
561016-1			SEE 54B16022		
561016-2			SEE 14986		
561019			SEE HM3		
561020		5930-296-5763	30 - 12	2	P1
561021-1			SEE 48154		
561021-14			SEE 48152		
561022		5305-285-7000	32 - 40	4	
561023-1			NHA 554690		
			NHA 554101		
561023-3			NHA 553514		
561024			SEE 370BB		
561026		5940-549-2236	11 - 68	4	P1
			12 - 49	1	P1
			35 - 11	1	P1
			38 - 12	1	P1
			38 - 32	1	P1
561029		5950-648-3525	SEE TE5685		
561030		5950-648-4907	SEE TE5898		
561031		5950-646-1474	SEE TE5899		
561034		5950-646-1481	SEE TE5901		
561035-2			32 - 16	1	P1
			32 - 39	2	
561036			SEE 5700		
561037		5330-291-5870	8 - 38	2	P1
561038			NHA 553830		
561038-105			SEE A5934		
561043-103			SEE RCM35E103F		
561043-142			SEE RCM20E142F		
561043-171			SEE RCM20E171F		
561043-421			SEE RCM20E421F		
561043-502			SEE RCM35E502F		
561044			SEE 414008		
561052-27			SEE 896-25RG		
561053		5975-642-7710	SEE A997-1		
561054		5841-536-4246	SEE AEMMDL228DWG3620		
561055			SEE D8757-1		
561056-1			NHA 554610		
561056-2			NHA 1003687		
561057-1			SEE 370FE		
561059			SEE 3425-3		
561060			NHA 1003766		
561063			SEE 337D25		
561065-20			NHA 1003604		
			NHA 1003603		
561068			SEE P50452		
561069		8356625-519-0059	SEE ASP371		
561070		5910-547-2796	SEE 328		
561071		5930-636-3664	12 - 9	1	P1
561074-1			SEE 1540AS		
			NHA 554911		
561076			SEE A7760-1		
561077-7			SEE 9610D		

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
561079-2			SEE 25C17		
561080			34 - 11	1	P1
561080-1			NHA 561080		
561080-2			NHA 561080		
561081			SEE 68		
561082			41 - 22	1	
561083			41 - 1	2	
561084			SEE 358		
561087			34 - 21	1	
561088-1			SEE M5SLRN		
561088-3			SEE M5SLRH19		
561088-7			SEE M5PLSH19		
			SEE M5PLSH19		
561089-1			SEE M9SLRN		
561089-11			SEE M9PLRN		
561089-13			SEE M9SLSH19		
561089-3			SEE M9SLRH19		
561089-7			SEE M9PLSH19		
561093-4			32	2	
			NHA 554650		
561094		5930-548-6262	SEE 12YY1142		
561094-1			NHA 561080		
561096-1			12	2	X1
561098-1KS			40 - 46	1	P1
561103			SEE 10-933		
561104-12		5305-207-4966	5 - 4	3	P1
			6 - 2	4	P1
			15 - 48	2	P1
			17 - 25	4	P1
			18 - 1	4	P1
			19 - 39	2	P1
			21 - 51	2	P1
561106-1			SEE GB225		
561108			11	1	
			11	1	
561214-14			NHA 1003766		
561214BLK20			NHA 1003579		
561269-1			SEE 47P10		
561625			SEE 77R6XR1266E		
561683-224K3			SEE 88P2249352		
561684-2			NHA 1003431		
561688-1			SEE 6952-1H		
561690		5310-809-0188	12	4	P1
			23	4	P1
561691		5310-619-3850	23	4	P1
561691-4			26 - 18	3	
561692		5970-296-2946	SEE 8683		
561693			SEE A793		
561694			SEE E4715		
561719-1			SEE GB34		
561719-2			SEE GB2 1-2 4		
561719-3			SEE GB2 1-2 5		
561742			SEE LA266A		
561755			SEE 1417		
561767L			NHA 561080		
561767R			NHA 561080		
561797			NHA 554742		
561836			39 - 45	1	P1
561846-1KS			28 - 47	2	
561866			NHA 553981		
561933			NHA 554101		
561953-6K1BY			26 - 17	3	
562058-12A			NHA 1024500		
			NHA 1024497		
562058-13			NHA 1024500		
562058-15			NHA 1024497		
562058-19A			NHA 1015587		
562058-21A			NHA 1015587		
562058-5A			NHA 1024502		
			NHA 1024498		
562058-9			NHA 1024502		
			NHA 1024498		
562077			NHA 554742		
562128-1			8 - 46	7	
			NHA 1004442		
			NHA 1004449		
562128-6			5 - 34	7	
562180			SEE CV11A070		
562197			SEE RCM35D103J		
562231-1			SEE 600-0151-4		
562247		5950-646-2852	SEE F640		
562247X			SEE F640		
562250-15			SEE 102P121		
562252			SEE LA156H		
562252X			SEE LA156H		
562253			SEE LA155D		
562253X			SEE LA155D		
562280		5945-259-5794	SEE HG2SM		
562295		5305-809-3002	37	10	P1
562318-1		5305-809-2998	12	4	P1
562331-1			NHA 554690		
562431			NHA 553800		
562486-1			SEE X3534		
562496		5977-295-9007	40 - 65	2	P1

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
562530C02-002			29 - 5	3	
562530C02-005			29 - 6	1	
			29 - 10	1	
			29 - 56	1	
562530C02-007			29 - 12	1	
562577			SEE 77R3X1E		
562591			NHA 1015527		
562863-3			43 - 37	1	
			45 - 15	2	
			46 - 18	1	
563342			SEE TA551TD3		
5654		5960-262-1357	40	1	
5700		5935-259-3443	12 - 43	1	P1
6		5325-275-5981	17 - 27	1	P1
6AK5W		5960-262-1357	9 - 4	3	
			15	3	
			40	1	
6AL5W			15	1	
			19	1	
			21	2	
6AQ5		5960-539-7814	40	1	
6AQ5W		5960-239-0553	15	2	
			17	4	
			19	1	
6AS6W		5960-237-6917	15	2	
			19	1	
6C4WA		5960-262-0155	9 - 6	1	
			15	1	
			19	1	
6D620			28 - 31	1	
			28 - 50	1	
			30 - 10	1	
6J6WA		5960-248-3086	9 - 7	1	
6L6WGB		5960-262-0161	21	4	
600-0151-4			12 - 27	12	
6005		5960-518-3091	17 - 6	4	
			40	1	
6095		5960-239-0553	15	2	
			17	4	
			19	1	
			40	1	
6096		5960-262-1357	6	3	
			9 - 4	3	
			15	3	
			40	1	
6097		5960-262-0185	15	1	
			19	1	
			21	2	
6187		5960-237-6917	15	2	
			19	1	
6575-1-1D		5340-216-6746	33 - 10	4	P1
68		5325-276-6008	35 - 15	2	P1
68NM02		5310-282-7844	25 - 47	2	P1
			28 - 26	2	P1
			34	1	P1
68NTE054		5310-843-2342	28 - 9	1	P1
6875			12 - 44	1	P1
6952-1H		5340-329-1318	39 - 6		P1
744470-2			42 - 3	1	
744471-1		5841-338-1689	42 - 10	1	
744474-1		5841-370-3347	42 - 2	1	
75-6			4	1	X
			38	2	
757-5-01			27 - 11	1	
77R2		3110-155-9589	44 - 21	2	P1
77R3		3110-155-9601	13 - 10	1	P1
			13 - 14	1	P1
			27 - 5	1	P1
77R3XR1E		3110-155-9602	29	4	P1
77R3X1E			29 - 49	1	P1
			29 - 54	1	P1
			29 - 60	4	
77R4		3110-554-6677	13 - 9	1	P1
			27 - 3	1	P1
			27 - 24	2	P1
77R4XR1E		3110-155-9630	30 - 27	1	
77R6XR1266E		3110-155-8418	29 - 2	1	
			29 - 43	1	
77R8X1E			25 - 37	1	P1
			28 - 38	1	P1
775255-1			42 - 21	2	
776-4-09			27 - 15	6	
779-6-02			27 - 13	2	
788209-1		16606105-327-4601	42 - 14	1	
788706-1		5841-370-3358	42 - 18	1	P1
788713-1			42 - 4	1	P1
788715-1			42 - 1	1	P1
788719-1			42 - 5	2	P1
788720-1		5841-370-3361	42 - 13	1	P1
8		5325-489-3084	32	1	
8DW53AAY17		6625-553-0557	37 - 22	1	P1
800158-1			42 - 15	2	
831324		5915-217-2914	11	1	
836-4-02			27 - 16	6	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
8500		2640-267-2989	12 - 32	1	P1
8575		2640-267-2989	6 - 16	1	P1
			6 - 18	1	P1
			6 - 20	1	P1
			12 - 40	1	P1
			5 - 35	9	P1
8683			8 - 45	2	P1
			40 - 94	1	P1
87		5325-276-7770	34 - 17	2	P1
88P2249382		5910-649-1103	12 - 31	1	P1
880		2640-684-2794	2 - 32	3	P1
896-25RG		5340-216-6747	34	5	P1
9-4		5940-549-4996	38 - 27	1	P1
90			4 - 34	2	P1
90BC		5940-195-9684	39 - 7	1	
900442KS			3 - 6	1	P1
901LBC			45 - 8	2	
901001KS			45 - 12	2	
			46 - 12	3	
			46 - 16	1	
			24 - 3	7	
901001KS1			24	1	
			24	4	
			24 - 43	2	
			25 - 17	2	
			25	2	
			12	4	
901001K1BB			14	2	
			34	4	
			37	2	
			39 -.39	2	
			39 - 96	2	
			NHA 553670		
901001K1BY			36	4	
			43 - 21	3	
901002KS			44 - 2	2	
			44 - 5	2	
			44 - 25	3	
			45 - 17	1	
			46 - 9	2	
			46 - 20	1	
			46 - 26	2	
901002KS1			25 - 25	3	
			25 - 42	6	
			31 - 11	6	
901002K1BB			13 - 7	3	
			34	2	
			34	4	
			34	4	
			39 - 14	4	
			39 - 17	4	
			39 - 91	3	
			39 -108	4	
			NHA 553670		
			NHA 554754		
			NHA 554999		
901002K1BY			43 - 17	2	
			43	1	
			NHA 1024518		
901003KS1			25 - 30	8	
			NHA 553800		
901003K1BB			34	4	
901004KS1			26 - 3	7	
901006K1BB			2	1	
901043KS1			24 - 7	4	
			28 - 7	4	
			43	1	
901081K1BY			28 - 41	1	
901086K1BY			34	2	
901102K1BB			34	2	
			21	1	
901123K1BY			24 - 6	8	
901135KS1			25 - 16	4	
			25 - 22	4	
			25	2	
			NHA 553700		
901135K1BB			25 - 26	3	
901136KS1			25 - 43	6	
			28 - 80	1	
			39 - 25	1	
901136K1BB			43	2	
			39 - 13	4	
901136K1BY			39 - 16	4	
			39 - 84	2	
			39 - 92	3	
			39 -109	3	
			43	1	
			NHA 1024518		
901137K1BY			12	1	
901138KS1			25 - 46	2	
			26 - 4	7	
			24 - 39	6	
901140K1			8	1	
901145K1BY			30 - 15	2	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
901145K1BY			32 - 13	4	
901146K1BB			24 - 2	7	
			24	4	
			28	4	
			39 - 97	2	
			NHA 553700		
901146K1BY			23	2	
			24 - 25	4	
			24 - 30	2	
			24	1	
			24 - 35	4	
			30	2	
			32 - 34	2	
			34	5	
			34	1	
			35	3	
			40 - 9	1	
			43 - 6	REF	
			43 - 9	REF	
901147K1BA			46 - 10	2	
			46 - 25	1	
901147K1BB			34	2	
			34	4	
			34	2	
			34	2	
			41 - 17	2	
901147K1BY			2	1	
			9	1	
			9	1	
			11	2	
			11	2	
			12	4	
			24	2	
			27 - 9	1	
			27 - 32	1	
			32 - 4	4	
			32 - 7	3	
			34	1	
			34	2	
			39 - 86	2	
			40 - 86	4	
			40 -104	4	
			43 - 18	2	
			NHA 554742		
901148K1BB			2	3	
			34	4	
901148K1BY			11	1	
			11	2	
			11	1	
			11	2	
			23	1	
			24	8	
			24	8	
			24	8	
			43 - 3	REF	
			43 - 12	REF	
			43 - 15	8	
901149K1BY			2	4	
			34	1	
			39 -113	3	
90148K1BY			40 - 51	3	
901818KS			45 - 18	1	
901818K1BY			11	1	
			11	1	
			NHA 554800		
901836K1BY			3	2	
			40 - 91	2	
901837K1BY			3 - 17	1	
			4 - 21	2	
901838K1BY			11	2	
			11	2	
			18	3	
			NHA 561080		
901849K1BY			23	1	
902011KS			45 - 7	2	
			45 - 11	2	
902011KS1			25 - 21	4	
			26 - 30	2	
902015KS			43 - 20	3	
902025K1BG			39	1	
902026KS			45 - 16	1	
902027KS1			25 - 41	6	
			31 - 9	6	
902034KS1			39 - 5	1	
902043KS1			NHA 553800		
902154K1BY			4 - 31	2	
902155K1BY			8	1	
902158K1BB			25 - 4	2	
*902161K1BY			30 - 13	2	
902163K1BY			6	2	
			6	2	
902179K1BY			4	2	
902180K1BY			39 - 20	1	
902182K1BY			2	1	

PART NUMBER	STOCK NUMBER		FIG. AND INDEX NO.	QTY. PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
902182K1BY			11	2	
			11	2	
902183K1BY			40 - 97	1	
902184K1BY			11	1	
902187K1BB			37	4	
902191K1BY			30 - 5	1	
902194K1BY			31 - 24	4	
902374KS1			26 - 2	7	
902630KS			44 - 20	3	
902631K1BY			43 - 25	1	
			43 - 29	1	
902645KS1			25 - 1	6	
902786K1BY			15	3	
			15	3	
			19	3	
902787K1BY			15	3	
			19	3	
			21	4	
			21	2	
			21	2	
902788K1BB			NHA 554800		
902788K1BY			23	3	
			23	3	
			23	4	
902800K1BY			35	1	
902802K1BB			34	2	
			34	2	
902804K1BY			40	2	
			40	1	
903885KS			44 - 24	3	
903887KS			44 - 1	2	
			44 - 4	2	
903888K1BB			13 - 2	3	
903889K1BY			27 - 8	1	
			27 - 31	1	
904027K1BY			6	2	
904040K1BY			40 - 77	2	
904041K1BY			6	2	
904042K1BY			NHA 554800		
904043K1BY			9	2	
			9	2	
			NHA 554850		
904051K1BY			11	2	
905315K1BY			NHA 1004442		
905322K1BY			NHA 1004442		
			NHA 1004449		
			NHA 554690		
			NHA 554808		
			NHA 1003809		
905323K1BY			NHA 554101		
905324K1BY			NHA 1003576		
9061			23 - 21	1	
91P10302			9 - 39	3	
926A		5960-151-7374	46 - 22	2	P1
926B2		5960-170-4435	11 - 24	1	P1
926C		5960-249-4973	23 - 7	3	P1
926C16		5960-699-5743	9 - 57	1	P1
926C35		5960-264-9513	9 - 58	1	P1
926C46		5340-862-5913	11 - 9	2	P1
			11 - 12	2	P1
926G1		5960-249-4921	11 - 18	1	P1
9610D			38 - 9	4	P1

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NO. CLASS CODE	STOCK NO. SERIAL OR PART NO.	PART NO.
C605	19 - 39			CP04A1EC473V3
C606	19 - 31		5910-101-4896	CM20B471K
C607	20 - 26			RCM19B221K
C608	20 - 29		5910-100-8141	CM20B330K
C609	19 - 32			560449-2
C610	20 - 27			RCM19B102K
C611	20 - 29		5910-100-8141	CM20B330K
C612	20 - 29			CM20B330K
C613	20 - 28		5910-101-4896	CM20B471K
C614	19 - 29			91P10404
C615	19 - 33			CP04A1EC104V3
C616	19 - 33			CP04A1EC104V3
C617	19 - 34			RCM19B221K
C701	16 - 7		5910-101-4896	CM20B471K
C702	15 - 41		5910-100-8141	CM20B330K
C703	16 - 11			CM20B330K
C704	16 - 14		5910-101-5617	CM20B101K
C705	15 - 39			CP04A1EC104V3
C706	16 - 20		5910-101-4023	CM30B102K
C707	16 - 21		5910-101-5610	CM20B121K
C708	15 - 35		5910-101-4896	CM20B471K
C709	15 - 41		5910-100-8141	CM20B330K
C710	16 - 25			CP04A1EC104M
C711	16 - 34		5910-100-8149	CM35B103K
C712	16 - 26			CM35B103K
C713	16 - 6			CP04A1EC473M
C714	16 - 34			CM35B103K
C715	16 - 6			CP04A1EC473M
C716	16 - 6			CP04A1EC473M
C717	15 - 39			CP04A1EC104V3
C718	16 - 39			CP04A1EC473M
C719	15 - 40			CP04A1EC105V3
C720	15 - 40			CP04A1EC105V3
C721	15 - 34			CP04A1EC473V3
C722	15 - 36		5910-100-8149	CM35B103K
C723	16 - 6			CP04A1EC473M
C724	15 - 42		5910-160-2256	CP70B1DF405K
C725	15 - 38			XF2670
C726	15 - 37			XF2657
C727	15 - 33			CK60AW102M
C801	23 - 19			CP61B1EF105K
C802	23 - 21			9061
C803	23 - 22			560833
C804	23 - 13			CP61B1EF105X
C805	23 - 13			CP61B1EF105X
C807	23 - 55			CK60AW203M
C901	22 - 1		5910-101-4896	CM20B471K
C902	21 - 25		5910-100-8141	CM20B330K
C903	21 - 25			CM20B330K
C904	22 - 26			CP04A1EC104M
C905	21 - 22			CP04A1EC104V3
C906	21 - 26		5910-101-4896	CM20B471K
C908	21 - 21			RCM19B102K
C909	22 - 15		5910-100-8149	CM35B103K
C910	21 - 24		5910-112-7598	CP26A1EF103M
C911	21 - 23			RCM35D103J
C912	22 - 15		5910-100-8149	CM35B103K
C913	22 - 9			CM35B103K
C914	21 - 24		5910-112-7598	CP26A1EF103M
C915	21 - 23			RCM35D103J
C916	22 - 9		5910-100-8149	CM35B103K
C917	21 - 25		5910-100-8141	CM20B330K
C918	21 - 46			CP04A1EC105V3
C919	21 - 46			CP04A1EC105V3
C920	21 - 48			XF2670
C1005	17 - 16		5910-100-8149	CM35B103K
C1006	17 - 16			CM35B103K
C1007	17 - 16			CM35B103K
C1008	17 - 16			CM35B103K
C1009	17 - 21			RCM30D103K
C1014	17 - 16		5910-100-8149	CM35B103K
C1015	17 - 16			CM35B103K
C1016	17 - 16			CM35B103K
C1017	17 - 16			CM35B103K
C1018	17 - 21			RCM30D103K
C1101	18 - 21			RCM20E171F
C1102	18 - 20			RCM20E421F
C1103	18 - 19			RCM35E502F
C1104	18 - 18		5910-643-9132	RCM35E103F
C1105	18 - 17			RCM20E142F
C1106	18 - 9			560449-2
C1201	36 - 21			XFS2609
C1202	36 - 9			CP04A1KE103K3
C1203	36 - 22			CP04A1EC104V
C1204	36 - 9			CP04A1KE103K3
C1205	36 - 9			CP04A1KE103K3
C1251	34 - 52			CP04A3KE103K
C1252	34 - 46		5910-828-5726	CP04A3KC473K
C1253	34 - 52			CP04A3KE103K
C1254	34 - 46		5910-828-5726	CP04A3KC473K
C1255	34 - 53		5910-881-5826	CL35BD250MP2
C1301	34 - 21			561087
C1302	32 - 9		5910-100-8149	CM35B103K
C1303	32 - 9			CM35B103K

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C1306	34 - 17		5910-649-1103	88P22493S2
C1307	34 - 17			88P22493S2
C1308	32 - 28			102P121
C1309	32 - 28			102P121
C1310	32 - 28			102P121
C1311	32 - 28			102P121
C1312	29 - 37			25C17
C1313	29 - 37			25C17
C1401	38 - 2			XF2653
C1402	38 - 33			CP04A1EE474K
C1403	38 - 1			CP04A1EC104V
C1404	38 - 34			CP04A1EC474V
C1405	38 - 35		5910-648-9332	560694-4
C1551	40 - 25		5910-642-6267	CP05A1EE473M
C1552	40 - 23		5910-667-1190	CP05A1EE104M
C1555	40 - 24			CP04A1EC104M
C1556	40 - 23		5910-667-1190	CP05A1EE104M
C1557	40 - 24			CP04A1EC104M
C1559	40 - 24			CP04A1EC104M
C1562	40 - 26			1047579
E301	9 - 18		5841-505-3464	1003435
E301	10 - 23			1003434
E302	10 - 13		5841-518-6129	1003576
E414	2 - 28			1004417
E415	12 - 15			1067720
E501	11 - 58			554955
E509	11 - 71			1003165
E520	11 - 74		5841-320-7358	554896
E601	19 - 14			1003549
E601	20 - 30		5841-578-6157	1003484
E602	20 - 16			1003479
E701	15 - 15		5841-505-1053	1003553
E701	16 - 29			1003485
E702	15 - 16		5841-505-2926	1003554
E702	16 - 36			1003486
E703	15 - 17		5841-505-1144	1003555
E703	16 - 42			1003487
E801	23 - 41			553654
E802	23 - 44			553657
E804	23			553667
E805	23 - 51			1003611
E818	23 - 28			1003861
E901	21 - 13		5841-505-3459	1003559
E901	22 - 21			1003488
E902	21 - 12		5841-505-2557	1003560
E902	22 - 12			1003489
E903	21 - 14		5841-505-1050	1003561
E903	22 - 27			1003496
E1001	17 - 17		5841-518-6140	1004358-1
E1002	17 - 18		5841-518-6188	1004358-2
E1101	18 - 22			553792
E1201	36 - 10			1003811
E1301	35 - 12			554798
E1302	32 - 10		5841-503-8198	554935
E1303	34 - 15			554822
E1304	25 - 49			554145
E1305	34 - 18			1015504
E1306	46 - 7		5940-666-3864	1417
E1307	46 - 7			1417
E1309	45 - 23			1024499-1
E1504	39 - 94		5910-648-7592	1003856
F402	12 - 3		5920-296-0530	414008
F403	12 - 4		5920-199-3973	413003
F801	23 - 1		5920-057-2979	413005
F802	23 - 2		5920-199-3973	413003
I1401	3 -831		6240-155-7836	AN3140-327
I1402	3 -831			AN3140-327
I1403	3 -831			AN3140-327
I1404	3 -831			AN3140-327
I1405	3 -831			AN3140-327
I1501	3 -989		6210-295-2627	A5345-328
I1502	39 - 89			A5345-328
I1503	39 - 89			A5345-328
I1504	39 - 89			A5345-328
J101	12		5935-259-4689	M7SLRH19
J151	5 - 33		5935-665-5719	UG1094U
J152	9 - 53		5935-258-2920	M7SLRN
J201	6 - 35			M7SLRN
J202	4 - 11		5960	40362
J203	4 - 24		5960	43455
J204	3 - 23		5841-320-7184	1003799
J205	6 - 36			14350
J301	9 - 15			14350
J302	9 - 16		5935-295-4354	A10S
J303	9 - 56		5935-299-7815	UG290U
J304	9 - 56			UG290U
J305	9 - 56			UG290U
J401	12 - 19		5935-283-7188	MS3102A16S1S
J402	12 - 20		5935-549-4494	MS3102A20-29P
J403	12 - 17		5935-299-7815	UG290U
J404	12 - 17			UG290U
J405	12 - 17			UG290U
J406	12 - 17			UG290U
J407	12 - 17			UG290U

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J410	12 - 43	5935-259-3443		5700
J411	12 - 21			MS3102A14S1S
J412	12 - 21			MS3102A14S1S
J513	11 - 5			14350
J514	11 - 63			UG262CU
J515	11 - 64	5935-259-3443		UG290U
J601	23 - 45			UG262CU
J602	15 - 10	5935-259-3443		UG290U
J603	15 - 10			UG290U
J604	15 - 10			UG290U
J605	15 - 10			UG290U
J606	15 - 10			UG290U
J607	15 - 10			UG290U
J608	23 - 46	5935-149-3466		MS3102A16S1P
J609	23 - 47	5935-280-2466		MS3102A20-29PW
J610	23 - 48			MS3102A20-11S
J611	23 - 38	5841-536-9280		553686
J612	23 - 49			MS3102A28-15S
J613	23 - 49			MS3102A28-15S
J701	23 - 39	5841-503-8594		553671
J901	23 - 40	5841-518-6044		553673
J1001-1	23 - 36	5935-642-4403		MRE7SG
J1001-2	23 - 36			MRE7SG
J1002-1	23 - 36			MRE7SG
J1002-2	23 - 36			MRE7SG
J1101	23 - 50			14276
J1201P	34 - 6			A15S
J1201R	34 - 6			A15S
J1202	36 - 27	5935-754-8787		MS24055-1
J1301	34 - 2	5935-644-7192		MS3102A20-11P
J1302	34 - 3	5935-280-2074		MS3102A20-27P
J1303	34 - 4	5935-283-7095		MS3102A20-27SW
J1304	34 - 10	5935-283-7188		MS3102A16S1S
J1305	34 - 5	5935-260-0517		TS101P01
J1306	34 - 5			TS101P01
J1307	34 - 9	5935-259-3277		M7SLRH19
J1308	34 - 8	5935-259-4689		M9SLRH19
J1309	34 - 9	5935-259-3277		M7SLRH19
J1310	34 - 7	5935-258-3000		M5SLRH19
J1311	46 - 38	5935-236-0972		AN3102A20-29S
J1312	46 - 31	5935-259-0081		M7PLRN
J1313	46 - 30	5935-259-3294		M9PLRN
J1314	46 - 5	5935-258-2959		M9SLRN
J1315	46 - 6			M5SLRN
J1503	43 - 38			UG261U
K101	8 - 27	5945-295-4113		3385
K201	6 - 37			3383
K202	6 - 38	5945-189-8667		3384
K301	9 - 55			HG2SM
K303	9 - 55			HG2SM
K501	11 - 23	5945-259-4368		B2133
K502	11 - 27			3379
K503	11 - 28	5945-258-3303		3272
K504	11 - 28			3272
K505	11 - 30			4MS1F1
K506	11 - 29	5945-258-3524		3378
K507	11 - 29			3378
K601	19 - 13			HSM2PDT
K602	19 - 12			HSM4PDT
K603	19 - 12			HSM4PDT
K604	19 - 13			HSM2PDT
K605	19 - 13			HSM2PDT
K901	21 - 40			HSM4PDT
K1301	35 - 1			HSM2PDT
K1302	35 - 1			HSM2PDT
K1303	35 - 2			HSM4PDT
K1304	35 - 3	5945-259-5521		D8757-1
K1305	34 - 1			HSM2PDT
K1310	46 - 11			HSM4PDT
K1401	38 - 3	5945-258-3463		C8773-1
K1402	38 - 5	5945-259-5353		C8778-1
K1403	38 - 4	5945-258-3554		A7760-1
L101	8 - 19	5950-645-9989		1015578-1
L102	8 - 20	5950-646-1701		1015611-1
L103	8 - 21	5950-645-9996		1015611-2
L104	8 - 22	5950-645-9986		1003859-4
L105	8 - 23	5950-646-1675		1004455-1
L106	8 - 24	5950-646-1673		1004455-2
L107	8 - 25	5950-646-1783		1004455-3
L108	8 - 18	5950-646-0133		1015497-1
L109	8 - 17	5950-645-9991		1004453
L110	8 - 29	5950-648-4844		1015495-1
L111	8	5950-645-9991		1004453
L112	8 - 29	5950-648-4844		1015495-1
L113	8	5950-645-9991		1004453
L114	8 - 17			1004453
L115	8 - 17			1004453
L116	8 - 17			1004453
L151	5 - 26	5950-646-0817		1004455-4
L152	5 - 28	5950-646-1674		1003427-3
L153	5 - 28			1003427-3
L154	5 - 28			1003427-3
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L158	5 - 30	5915-503-2064		1015496
L159	5 - 30			1015496
L160	5 - 30			1015496
L161	5 - 30			1015496
L162	5 - 29	5950-645-9991		1004453
L163	5 - 29			1004453
L164	5 - 29			1004453
L165	5 - 29			1004453
L166	5 - 29			1004453
L167	5 - 29			1004453
L168	5 - 29			1004453
L201	6 - 30	5950-648-3188		1003423-1
L203	6 - 34	5950-645-9992		1003427-5
L205	7 - 6	5950-646-1673		1003423-3
L206	7 - 7	5950-645-9990		1003423-7
L207	6 - 32	5950-646-0784		1003427-2
L208	6 - 33	5950-646-1672		1003427-1
L209	7 - 24	5950-646-1690		1003420-1
L301	9 - 43			TE5781
L305	9 - 42	5950-645-9988		1003422-1
L404	12 - 25			F640
L405	12 - 25			F640
L501	11 - 49			TE5683
L502	11 - 20	5950-646-0709		1003599-1
L503	11 - 48			D165
L701	16 - 27	5950-646-1671		1003424-2
L702	16 - 27			1003424-2
L801	23 - 15			TE5684
L802	23 - 16			TE5685
L803	23 - 17			TE5781
L1503	40 - 88			554046
L1504	40 - 80	5950-646-4338		554037
L1554	40 - 27	5950-648-4841		1003424-3
L1555	40 - 28	5950-645-9985		1003424-5
M401	12 - 10			ASP371
M1401	37 - 22	6625-553-0557		8DW53AAY17
P101	8	5841-505-3281		1015559
P102	8			1015559
P103	8 - 7	5935-259-7038		M7PLSH19
P151	8 - 9	5935-173-5895		UG260BU
P152	5 - 7	5935-259-7038		M7PLSH19
P201	4 - 36			M7PLSH19
P202	6 - 16			8575
P203	6 - 18			8575
P204	6 - 20			8575
P205	12			A15SH
P301	12			A15SH
P302	12	5935-198-9603		A10P
P303	5 - 9	5935-173-5895		UG260BU
P304	12 - 40			8575
P305	12 - 40			8575
P413	12 - 44			6875
P513	12			A15SH
P514	12 - 40			8575
P515	12 - 40			8575
P517	11 - 61			153532
P611	19 - 15	5935-309-3125		553765
P701	15 - 18			553699
P901	21 - 11	5841-518-6045		553733
P1001-1	17 - 10	5935-295-4341		MRE7PG
P1001-2	17 - 10			MRE7PG
P1002-1	17 - 10			MRE7PG
P1002-2	17 - 10			MRE7PG
P1101	18 - 8			14277
P1201	36 - 15			14350CCT
P1202	34 - 58	5935-754-8795		MS24056-1
P1304	32 - 18	5935-274-7271		MS3108B16S1P
P1305	30 - 41			54B16022
P1306	30 - 41			54B16022
P1307	32 - 8	5935-259-7038		M7PLSH19
P1308	26 - 11	5935-500-8242		M9PLSH19
P1308	46 - 3			M9PLSH19
P1309	26 - 12	5935-259-7038		M7PLSH19
P1310	26 - 13	5935-259-3605		M5PLSH19
P1312	46 - 35	5935-259-7038		M7SLSH19
P1313	46 - 37	5935-259-3277		M9SLSH19
P1315	44 - 28	5935-259-3605		M5PLSH19
P1401	37 - 10			MS3106B20-29SW
P1402	37 - 12	5935-229-4441		MS3106B20-27S
P1403	37 - 14	5935-258-8031		MS3106B20-29S
P1404	37 - 16			MS3106B20-27PZ
P1501	39 - 53	5935-259-2515		MS3106B28-15P
P1502	39 - 50	5935-173-5895		UG260BU
Q1251	34 - 28	5960-630-5882		2N332
Q1252	34 - 28			2N332
Q1253	34 - 27	5960-752-5240		2N1131
Q1254	34 - 29	5960-630-5882		2N697
Q1255	34 - 48	5960-879-7498		1076621
Q1256	34 - 48			1076621
Q1257	34 - 28	5960-630-5882		2N332
Q1258	34 - 28			2N332
Q1259	34 - 27	5960-752-5240		2N1131

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Q1261	34 - 48		5960-879-7498	1076621
Q1262	34 - 48			1076621
R101	8 - 13			RC20GF680K
R102	8 - 12		5905-256-0409	RC20GF221K
R103	8 - 12			RC20GF221K
R104	8 - 12			RC20GF221K
R105	8 - 12			RC20GF221K
R106	8 - 10		5905-195-6809	RC20GF122K
R107	8 - 12		5905-256-0409	RC20GF221K
R108	8 - 12			RC20GF221K
R109	8 - 11		5905-279-2621	RC20GF330K
R151	5 - 11		5905-190-8889	RC20GF101K
R152	5 - 12		5905-256-0409	RC20GF221K
R153	5 - 13		5905-190-8887	RC20GF202J
R154	5 - 12		5905-256-0409	RC20GF221K
R155	5 - 15		5905-257-0935	RC20GF432J
R156	5 - 12		5905-256-0409	RC20GF221K
R157	5 - 16		5905-279-3505	RC20GF392J
R158	5 - 12		5905-256-0409	RC20GF221K
R159	5 - 15		5905-257-0935	RC20GF432J
R160	5 - 12		5905-256-0409	RC20GF221K
R161	5 - 16		5905-279-3505	RC20GF392J
R162	5 - 12		5905-256-0409	RC20GF221K
R163	5 - 16		5905-279-3505	RC20GF392J
R164	5 - 17		5905-279-1751	RC20GF302J
R165	5 - 18		5905-192-0390	RC20GF105K
R166	5 - 10		5905-185-8518	RC20GF103K
R167	5 - 12		5905-256-0409	RC20GF221K
R168	5 - 19		5905-279-1869	RC20GF121K
R169	5 - 12		5905-256-0409	RC20GF221K
R170	5 - 19		5905-279-1869	RC20GF121K
R171	5 - 12		5905-256-0409	RC20GF221K
R172	5 - 19		5905-279-1869	RC20GF121K
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R176	5 - 19		5905-279-1869	RC20GF121K
R177	5 - 12		5905-256-0409	RC20GF221K
R178	5 - 10		5905-185-8513	RC20GF103K
R180	5 - 20		5905-249-4248	RC20GF333K
R181	5 - 10		5905-185-8518	RC20GF103K
R182	5 - 21		5905-171-1998	RC20GF333J
R187	5 - 14		5905-258-6371	X3534
R203	7 - 1		5905-279-1756	RC20GF151K
R204	7 - 2		5905-195-6502	RC20GF332K
R205	7 - 3		5905-186-3008	RC20GF101K
R206	7 - 9		5905-185-8513	RC20GF103K
R207	7 - 9			RC20GF103K
R208	7 - 10			RC20GF334K
R209	7 - 10			RC20GF334K
R210	7 - 15		5905-295-3410	RC20GF473K
R211	7 - 11		5905-192-3987	RC20GF104K
R212	7 - 43		5905-195-6500	RC20GF124K
R213	7 - 44			RC20GF560K
R214	7 - 45		5905-190-8879	RC20GF183K
R215	7 - 46		5905-249-4248	RC20GF333K
R216	7 - 61		5905-295-3409	RC20GF224K
R217	7 - 62		5905-279-3506	RC20GF332J
R218	7 - 63		5905-195-6761	RC20GF104J
R219	7 - 64		5905-192-0390	RC20GF105K
R220	7 - 51			RC20GF105K
R221	7 - 65			RC20GF102K
R222	7 - 52			RC20GF102K
R223	7 - 53		5905-171-1985	RC20GF822J
R224	7 - 54		5905-195-6761	RC20GF104J
R225	7 - 55		5905-279-2509	RC20GF515J
R226	7 - 56		5905-279-1759	RC20GF754J
R227	7 - 57		5905-279-3495	RC20GF753J
R228	7 - 54		5905-195-6761	RC20GF104J
R229	7 - 58		5905-249-4195	RC20GF752J
R230	7 - 59			RC20GF103J
R231	7 - 26		5905-192-3987	RC20GF104K
R232	6 - 22		5905-295-3410	RC20GF473K
R233	7 - 47		5905-295-3409	RC20GF224K
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R235	7 - 17		5905-195-6799	RC20GF561K
R236	7 - 18		5905-185-6944	RC20GF394K
R237	7 - 19		5905-279-3497	RC20GF393J
R238	7 - 20		5905-279-3495	RC20GF753J
R239	7 - 19		5905-279-3497	RC20GF393J
R240	7 - 20		5905-279-3495	RC20GF753J
R241	7 - 27		5905-279-1759	RC20GF754J
R242	7 - 28		5905-195-6809	RC20GF122K
R243	7 - 28			RC20GF122K
R244	7 - 29		5905-195-6500	RC20GF124K
R245	7 - 30		5905-249-4248	RC32GF333K
R246	7 - 31		5905-249-4248	RC20GF333K
R247	7 - 32		5905-190-8879	RC20GF183K
R248	7 - 37		5905-279-3503	RC20GF682J
R249	7 - 38		5905-185-8518	RC20GF103K
R250	7 - 33		5905-185-6946	RC20GF474K
R251	7 - 39		5905-249-3661	RC20GF683J
R252	7 - 39			RC20GF683J
R253	7 - 39		5905-249-3661	RC20GF683J
R254	7 - 40		5905-190-8881	RC20GF182J
R255	7 - 21		5905-192-0390	RC20GF105K
R256	6 - 23			A5934
R301	10 - 10			560026-152J
R302	10 - 4		5905-192-0390	RC20GF105K
R303	10 - 8			560027-702J
R304	10 - 5			RC20GF184K
R305	9 - 50		5905-107-8024	JLU5031
R306	10 - 6		5905-192-3987	RC20GF104K
R307	10 - 7			560027-602J
R308	10 - 9			560026-252J
R309	10 - 4		5905-192-0390	RC20GF105K
R310	10 - 5			RC20GF184K
R311	9 - 50		5905-107-8024	JLU5031
R312	10 - 6		5905-192-3987	RC20GF104K
R313	9 - 19		5905-195-6791	RC20GF681K
R314	9 - 35		5905-256-0409	RC20GF221K
R315	9 - 24		5905-279-3496	RC20GF513J
R316	9 - 34			RC20GF272K
R317	9 - 20		5905-192-0390	RC20GF105K
R318	9 - 21		5905-252-4018	RC20GF470J
R319	9 - 22		5905-279-1876	RC32GF222J
R320	9 - 24		5905-279-3496	RC20GF513J
R321	9 - 26		5905-185-6946	RC20GF474K
R322	9 - 25		5905-279-3504	RC20GF472J
R323	9 - 23		5905-185-8518	RC20GF103K
R324	9 - 28		5905-195-6806	RC20GF102K
R325	9 - 29			RC20GF223K
R326	9 - 20		5905-192-0390	RC20GF105K
R327	9 - 23		5905-185-8518	RC20GF103K
R328	9 - 33		5905-192-3987	RC20GF104K
R329	9 - 31		5905-195-6451	RC20GF472K
R330	9 - 32		5905-249-4248	RC20GF333K
R331	9 - 50		5905-107-8024	JLU5031
R332	9 - 30		5905-195-6809	RC20GF122K
R333	10 - 16		5905-254-7097	RC20GF823K
R334	9 - 50		5905-107-8024	JLU5031
R335	9 - 27			RC20GF222K
R336	9 - 27			RC20GF222K
R337	10 - 17		5905-295-3410	RC20GF473K
R338	9 - 23		5905-185-8518	RC20GF103K
R339	10 - 15		5905-192-3987	RC20GF104K
R340	10 - 3		5905-185-6946	RC20GF474K
R342	9 - 47		5905-279-1757	RC20GF152K
R343	9 - 36		5905-192-3987	RC30GF104K
R344	10 - 23			RH25-15000H
R345	9 - 25		5905-195-6451	RC20GF472J
R401	12 - 14			RN20X6310F
R402	12 - 14			RN20X6310F
R403	12 - 14			RN20X6310F
R404	12 - 14			RN20X6310F
R405	12 - 8			RN20X6310F
R406	3 - 7		5905-192-0390	RC20GF105K
R407	12 - 11		5905-195-9481	RC20GF751J
R408	12 - 13			RN20X5603F
R409	12 - 14			RN20X6310F
R410	12 - 13			RN20X5603F
R412	12 - 14			RN20X6310F
R413	12 - 13			RN20X5603F
R414	12 - 14			RN20X6310F
R415	12 - 13			RN20X5603F
R416	12 - 14			RN20X6310F
R501	11 - 54		5905-279-2526	RC42GF514J
R502	11 - 54			RC42GF514J
R503	11 - 54			RC42GF514J
R504	11 - 54			RC42GF514J
R505	11 - 54			RC42GF514J
R506	11 - 34			JR21JM4-1PORM1PCT
R507	11 - 15			RC30GF103K
R508	11 - 33		5905-279-3516	RC20GF910J
R509	11 - 33			RC20GF910J
R510	11 - 31			RW56J102
R511	11 - 35			561002-250
R512	11 - 55		5905-299-1985	RC32GF105K
R513	11 - 56			RC32GF105K
R514	11 - 56			RC32GF105K
R515	11 - 56			RC32GF105K
R516	11 - 31			RW56J102
R601	20 - 25			RC20GF102K
R602	19 - 28			RC42GF393K
R603	20 - 5			JLU1031
R605	20 - 11			JR21JE274PORM1PCT
R606	20 - 12			JR21JE364PORM1PCT
R607	20 - 13			JR21JE454PORM1PCT
R608	19 - 21		5905-185-8518	RC20GF103K
R609	20 - 24		5905-195-6758	RC20GF273K
R610	19 - 22			RC20GF223K
R611	19 - 23		5905-295-3409	RC20GF224K
R612	20 - 1		5905-190-8882	RC20GF393K
R613	20 - 6		5905-114-3278	JLU5021
R615	20 - 7		5905-107-8024	JLU5031
R616	20 - 2		5905-254-7100	RC20GF913J
R617	20 - 17		5905-192-9187	RC20GF473K

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NO. CLASS CODE	STOCK NO. SERIAL OR PART NO.	PART NO.
R618	20 - 18		5905-279-2509	RC20GF515J
R619	19 - 24			RC20GF272K
R620	20 - 19		5905-254-7097	RC20GF823K
R621	20 - 20			RC20GF105K
R622	19 - 25		5905-279-2019	RC20GF512J
R623	20 - 21		5905-171-1998	RC20GF333J
R624	19 - 26		5905-279-3496	RC20GF513J
R625	19 - 27		5905-192-3987	RC20GF104K
R626	20 - 21		5905-171-1998	RC20GF333J
R627	20 - 25			RC20GF102K
R628	20 - 22		5905-192-3987	RC20GF104K
R629	20 - 23		5905-249-3661	RC20GF683J
R630	20 - 21		5905-171-1948	RC20GF333J
R631	20 - 8		5905-195-6263	JLU1041
R632	20 - 4		5905-195-6502	RC20GF332K
R633	20 - 3		5905-192-3987	RC20GF104K
R634	20 - 14			RC32GF472K
R635	20 - 14			RC32GF472K
R701	16 - 8		5905-186-3006	RC20GF101K
R702	15 - 24		5905-195-6500	RC20GF124K
R703	15 - 23		5905-185-6944	RC20GF394K
R704	16 - 10		5905-192-9187	RC30GF473K
R705	16 - 9		5905-186-2981	RC30GF393K
R706	15 - 22		5905-171-1985	RC20GF822K
R707	15 - 23		5905-184-6944	RC20GF394K
R708	15 - 24		5905-195-6500	RC20GF124K
R709	16 - 12		5905-221-5848	RC20GF824J
R710	16 - 13		5905-279-2516	RC20GF514J
R711	16 - 15		5905-185-8518	RC20GF103K
R712	16 - 18		5905-195-6451	RC20GF472K
R713	16 - 19		5905-257-0935	RC20GF432J
R714	15 - 25		5905-279-2019	RC20GF512J
R715	16 - 16		5905-190-8881	RC20GF182J
R716	16 - 17		5905-195-6791	RC20GF681J
R717	16 - 22		5905-171-2004	RC20GF223K
R718	16 - 23			RC20GF563K
R719	16 - 41		5905-185-8518	RC20GF103K
R720	15 - 30		5905-186-3008	RC20GF101K
R721	16 - 24		5905-256-0409	RC20GF222K
R722	16 - 9		5905-190-8882	RC30GF393K
R723	16 - 35			RC20GF680K
R724	16 - 33		5905-279-2621	RC20GF330K
R725	15 - 29		5905-185-6946	RC20GF474K
R726	16 - 28		5905-279-1757	RC20GF152J
R727	15 - 28		5905-299-1541	RC20GF151J
R728	15 - 27		5905-192-3987	RC20GF104K
R729	16 - 8		5905-186-3008	RC20GF101K
R730	15 - 29		5905-185-6946	RC20GF474K
R731	15 - 28		5905-299-1541	RC20GF151J
R733	15 - 29		5905-185-6946	RC20GF474K
R734	16 - 28		5905-279-1757	RC20GF152J
R736	16 - 30		5905-185-6946	RC20GF474K
R737	16 - 32		5905-279-2616	RC20GF153J
R738	16 - 31		5905-254-7097	RC20GF823J
R739	15 - 30		5905-186-3008	RC20GF101K
R740	15 - 31		5905-185-8518	RC20GF103K
R741	15 - 30		5905-186-3008	RC20GF101K
R742	15 - 27		5905-192-3987	RC20GF104K
R743	16 - 40		5905-295-3410	RC20GF473K
R744	15 - 14		5905-195-6263	JLU1041
R745	16 - 38		5905-195-6761	RC20GF104K
R746	15 - 32		5905-295-3409	RC20GF224K
R747	16 - 37		5905-195-6758	RC20GF273K
R748	16 - 4		5905-195-6500	RC20GF124K
R749	15 - 13		5905-107-8024	JLU5031
R750	16 - 2			RC20GF334K
R751	16 - 1			RC30GF562K
R752	16 - 3		5905-279-1718	RC30GF822K
R753	15 - 21		5905-279-2522	RC20GF154J
R754	16 - 5		5905-195-6761	RC20GF104J
R756	15 - 26			RC20GF392K
R770	15 - 27		5905-192-3987	RC20GF104K
R771	15 - 27			RC20GF104K
R772	15 - 28		5905-299-1541	RC20GF151J
R801	23 - 52			1022193
R802	23 - 27			RH25-25000G
R803	23 - 27			RH25-25000G
R804	23 - 42			RC20GF105K
R805	23 - 43			RC20GF471K
R806	23 - 42			RC20GF105K
R807	23 - 43			RC20GF471K
R810	23 - 52			1022193
R811	23 - 27			RH25-25000G
R812	23 - 27			RH25-25000G
R901	21 - 28		5905-171-1985	RC20GF822K
R902	21 - 29		5905-195-6500	RC20GF124K
R903	21 - 27		5905-185-6944	RC20GF394J
R904	22 - 24			RC32GF393K
R905	22 - 24			RC32GF393K
R906	22 - 25		5905-185-6944	RC20GF394K
R907	21 - 29		5905-195-6500	RC20GF124K
R908	22 - 23			RC20GF824K
R909	22 - 22		5905-185-6946	RC20GF474K
R910	21 - 30		5905-190-8885	RC20GF225J
R911	21 - 31		5905-195-6451	RC20GF472J
R912	21 - 49		5905-192-0390	RC20GF105K
R913	22 - 3		5905-249-3661	RC20GF683J
R914	22 - 5		5905-195-6451	RC20GF472J
R915	22 - 4		5905-192-3987	RC20GF104K
R916	21 - 32		5905-185-8518	RC20GF103K
R917	21 - 33		5905-249-4248	RC20GF333K
R918	21 - 35		5905-190-8882	RC20GF123K
R919	22 - 2		5905-171-1985	RC20GF822K
R920	22 - 17		5905-185-8518	RC20GF103K
R921	22 - 16			RC20GF223K
R922	22 - 18		5905-249-4248	RC20GF333K
R923	22 - 14		5905-192-3987	RC20GF104K
R924	21 - 36		5905-259-3409	RC20GF224K
R925	21 - 34		5905-299-2004	RC32GF104K
R926	21 - 37		5905-185-6946	RC20GF474K
R927	22 - 14		5905-192-3987	RC20GF104K
R928	21 - 38		5905-171-2002	RC20GF470K
R929	21 - 38			RC20GF470K
R930	21 - 38			RC20GF470K
R931	21 - 38			RC20GF470K
R932	22 - 13		5905-279-1716	RC32GF333K
R933	21 - 16		5905-120-1884	JLU1011
R934	21 - 18			RC32GF101K
R935	22 - 11			RC30GF511J
R936	22 - 7		5905-185-8518	RC20GF103K
R937	22 - 6			RC20GF223K
R938	22 - 8		5905-249-4248	RC20GF333K
R939	22 - 4		5905-192-3987	RC20GF104K
R940	21 - 36		5905-295-3409	RC20GF224K
R941	21 - 34		5905-299-2004	RC32GF104K
R942	22 - 4		5905-192-3987	RC20GF104K
R943	21 - 37		5905-185-6946	RC20GF474K
R944	22 - 20			RC20GF474K
R945	22 - 19		5905-190-8879	RC20GF183K
R946	21 - 38		5905-252-4018	RC20GF470K
R947	21 - 38			RC20GF470K
R948	21 - 38			RC20GF470K
R949	21 - 38			RC20GF470K
R950	22 - 10		5905-279-1716	RC32GF333K
R951	21 - 16		5905-120-1884	JLU1011
R952	21 - 18			RC32GF101K
R953	22 - 11		5905-279-3511	RC30GF511J
R954	21 - 39			RC20GF471K
R955	21 - 39			RC20GF471K
R956	21 - 47		5905-279-2607	RC32GF681K
R957	21 - 49			RC20GF105K
R958	21 - 50		5905-279-1876	RC20GF222J
R1006	17 - 12		5905-195-6500	RC20GF124K
R1007	17 - 12			RC20GF124K
R1008	17 - 20			RC20GF102K
R1009	17 - 20			RC20GF102K
R1010	17 - 13		5905-643-5140	RC20GF274K
R1011	17 - 13			RC20GF274K
R1012	17 - 14		5905-195-6758	RC20GF273K
R1013	17 - 15		5905-190-8887	RC20GF202J
R1014	17 - 14		5905-195-6758	RC20GF273K
R1015	17 - 13		5905-643-5140	RC20GF274K
R1016	17 - 13			RC20GF274K
R1019	17 - 19			RH25-250R0G
R1025	17 - 12		5905-195-6500	RC20GF124K
R1026	17 - 12			RC20GF124K
R1027	17 - 20			RC20GF102K
R1028	17 - 20			RC20GF102K
R1029	17 - 13		5905-643-5140	RC20GF274K
R1030	17 - 13			RC20GF274K
R1031	17 - 14		5905-195-6758	RC20GF273K
R1032	17 - 15		5905-190-8887	RC20GF202J
R1033	17 - 14		5905-195-6758	RC20GF273K
R1034	17 - 13		5905-643-5140	RC20GF274K
R1035	17 - 13			RC20GF274K
R1038	17 - 19			RH25-250R0G
R1101	18 - 6		5905-279-4902	JLU1052
R1102	18 - 5			RC20GF824K
R1103	18 - 10			RC32GF102J
R1104	18 - 11		5905-279-1718	RC32GF681J
R1105	18 - 12		5905-299-2048	RC32GF471J
R1106	18 - 13		5905-101-7856	RC32GF100K
R1201	36 - 18		5905-256-0387	RC20GF681K
R1202	36 - 19		5905-195-6263	JLU1041
R1203	36 - 6		5905-192-3987	RC20GF104K
R1204	36 - 5		5905-185-6946	RC20GF474K
R1205	36 - 6		5905-192-3987	RC20GF104K
R1206	36 - 5		5905-185-6946	RC20GF474K
R1207	36 - 6		5905-192-3987	RC20GF104K
R1208	36 - 6			RC20GF104K
R1209	36 - 6			RC20GF104K
R1210	36 - 17		5905-257-2631	RC20GF821K
R1211	36 - 7			RC20GF334K
R1212	36 - 5		5905-185-6946	RC20GF474K
R1213	36 - 7			RC20GF334K
R1214	36 - 5		5905-185-6946	RC20GF474K
R1215	36 - 20		5905-198-9435	JLU5011
R1220	36 - 5		5905-185-6946	RC20GF474K

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NO. CLASS CODE	STOCK NO. SERIAL OR PART NO.	PART NO.
R1221	36 - 5	5905	185-6946	RC20GF474K
R1222	36 - 5			RC20GF474K
R1223	36 - 5			RC20GF474K
R1224	36 - 8	5905	171-1985	RC20GF822K
R1225	36 - 8			RC20GF822K
R1228	36 - 25	5905	192-9260	RC20GF154K
R1251	34 - 31	5905	171-2004	RC20GF222J
R1252	34 - 41	5905	279-2616	RC32GF153J
R1253	34 - 40	5905	195-6806	RC20GF102J
R1254	34 - 33	5905	279-1879	RC20GF270J
R1255	34 - 43	5905	279-3511	RC20GF511J
R1256	34 - 32	5905	171-2004	RC20GF223J
R1257	34 - 37	5905	185-8510	RC20GF103J
R1258	34 - 44	5905	257-0935	RC20GF432J
R1259	34 - 38	5905	171-1985	RC20GF822J
R1260	34 - 42			451E2515
R1261	34 - 56	5905	279-3517	RC20GF510J
R1262	34 - 56			RC20GF510J
R1263	34 - 31	5905	279-1876	RC20GF222J
R1264	34 - 41	5905	299-2028	RC32GF153J
R1265	34 - 40	5905	195-6806	RC20GF102J
R1266	34 - 43	5905	279-3511	RC20GF511J
R1267	34 - 33	5905	279-1879	RC20GF270J
R1268	34 - 32	5905	171-2004	RC20GF223J
R1269	34 - 37			RC20GF103J
R1270	34 - 44	5905	257-0935	RC20GF432J
R1271	34 - 38	5905	171-1985	RC20GF822J
R1272	34 - 42			451E2515
R1273	34 - 56	5905	279-3517	RC20GF510J
R1274	34 - 56			RC20GF510J
R1275	34 - 39	5905	171-1998	RC20GF331J
R1276	34 - 55	5905	299-4056	RC32GF152J
R1277	34 - 36	5905	279-3506	RC20GF332J
R1278	34 - 36			RC20GF332J
R1279	34 - 55	5905	299-2046	RC32GF152J
R1280	34 - 55			RC32GF152J
R1281	34 - 55			RC32GF152J
R1301	28 - 36			5000G2S
R1302	35 - 7	5905	254-7100	RC20GF913J
R1303	35 - 6	5905	195-5514	RC20GF152K
R1304	35 - 9	5905	114-3159	JLU1021
R1305	35 - 6	5905	195-5514	RC20GF152K
R1306	35 - 10	5905	114-3278	JLU5021
R1307	35 - 8	5905	279-1718	RC32GF822J
R1308	34 - 16	5905	503-8648	RW55J100
R1309	34 - 16			RW55J100
R1310	46 - 32	5905	120-1884	JLU1011
R1401	38 - 26			W2973
R1402	38 - 23	5905	518-7930	42W
R1404	38 - 27			90
R1501	39 -116	5905	120-1884	JLU1011
R1508	39 - 61	5905	299-2089	JU1041P2040
R1509	39 - 60	5905	195-6758	RC20GF273K
R1510	39 - 69	5905	258-6187	2-95
R1513	39 -115	5905	108-6369	RA20A1SA102AK
R1516	39 - 65			140126
R1520	39 - 98	5905	279-4320	RC42GF100K
R1552	40 - 21	5905	299-2045	RC32GF122J
R1553	40 - 18	5905	192-3987	RC20GF104K
R1554	40 - 17	5905	171-1985	RC20GF822K
R1555	40 - 16	5905	195-6767	RC20GF104J
R1556	40 - 22	5905	195-5524	RC42GF182J
R1557	40 - 19	5905	295-3409	RC20GF224K
R1561	40 - 14	5905	190-8889	RC20GF101J
R1562	40 - 14			RC20GF101J
R1567	40 - 20	5905	185-6946	RC20GF474K
R1568	40 - 15	5905	190-8880	RC20GF122J
R1569	40 - 16	5905	195-6767	RC20GF104J
S401	12 - 48	5930	549-0356	553769
S402	12 - 9	5930	636-3664	561071
S1101	18 - 25			B7542
S1301	28 - 73	5930	549-0585	AN3234-1
S1302	28 - 73			AN3234-1
S1303	32 - 21	5930	296-5826	1003609R
S1304	32 - 20	5930	548-6178	1003609L
S1307	30 - 12	5930	296-5763	561020
S1308	30 - 12			561020
S1401	38 - 16			49832H3
S1402	38 - 17			49833H3
S1403	38 - 28	5930	274-5114	AN3021-3
S1404	38 - 25	5930	548-6245	560691
S1405	38 - 24	5930	548-7794	560692
S1406	38 - 28	5930	274-5114	AN3021-3
S1407	38 - 27			90
S1408	38 - 18			49834H1
S1409	38 - 28	5930	274-5114	AN3021-3
S1410	38 - 29	5930	549-0799	1004432
S1411	38 - 19	5930	549-0590	1SM1
S1501	39 - 46			12YY1142
S1502	39 - 46			12YY1142
TP201	6 - 39	5940	642-1705	X1990
TP301	9 - 51			X1990
TP302	9 - 51			X1990
TP303	9 - 51			X1990

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NO. CLASS CODE	STOCK NO. SERIAL OR PART NO.	PART NO.
TP304	9 - 51	5940	642-1705	X1990
TP1201	36 - 26	5935	685-9396	MS16108-1A
TP1251	34			MS16108-1A
T301	9 - 46			TE5898
T302	9 - 45			TE5899
T501	11 - 43			TE5997
T502	11 - 44	5950	646-1268	560574
T503	11 - 45			TE5691
T504	11 - 46			TE6442
T505	11 - 47	5950	547-8389	560577
T601	19 - 18			TE5696
T602	19 - 19			TE5695
T701	15 - 43			TE5695
T801	23 - 26			TE6002
T802	23 - 25			TE5901
T1001	17 - 22	5950	648-6487	TE5787
T1002	17 - 22			TE5787
T1201	36 - 12			TE5701
T1202	36 - 11			TE5702
T1301	34 - 23			TE5699
T1302	46 - 28			UTCP1
T1303	46 - 29			UTCP12
VR1251	34 - 34	5960	881-1372	1N1883A
VR1252	34 - 34			1N1883A
VR1253	34 - 34			1N1883A
VR1254	34 - 34			1N1883A
V101	8 - 3	5960	509-3054	JAN5654
V102	8 - 5	5960	284-9643	JAN6J6W
V103	8 - 3	5960	509-3054	JAN5654
V151	5 - 2			JAN5654
V152	5 - 2			JAN5654
V153	5 - 2			JAN5654
V154	5 - 2			JAN5654
V155	5 - 2			JAN5654
V156	5 - 2			JAN5654
V157	5 - 2			JAN5654
V201	6 - 8			JAN5654
V202	6 - 10	5960	553-6065	JAN5726
V203	6 - 8	5960	509-3054	JAN5654
V204	6 - 12	5960	552-0082	JAN5727
V205	6 - 13	5960	108-0263	JAN6D4
V206	6 - 14	5960	284-9643	JAN6101
V207	6 - 9	5960	237-6917	JAN5725
V208	6 - 8	5960	509-3054	JAN5654
V301	9 - 1	5960	193-5111	JAN5R4WGY
V302	9 - 2	5960	166-7674	JAN6AS7G
V303	9 - 4	5960	509-3054	JAN5654
V304	9 - 9	5960	188-0880	JAN6X4W
V305	9 - 4	5960	509-3054	JAN5654
V306	9 - 11	5960	503-4880	JAN0A2WA
V307	9 - 10	5960	262-3763	JAN0B2WA
V308	9 - 11	5960	503-4880	JAN0A2WA
V309	9 - 10	5960	262-3763	JAN0B2WA
V310	9 - 4	5960	509-3054	JAN5654
V311	9 - 6	5960	262-0155	JAN6100
V312	9 - 7	5960	284-9643	JAN6101
V313	9 - 13	5960	600-5235	JAN5814WA
V401	3 - 4	5960	188-6580	JAN1B35
V402	3 - 12	5960	188-3534	JAN1B63A
V403	3 - 3	5960	107-7605	JAN2K25
V404	3 - 3			JAN2K25
V501	11 - 1			JAN3B24W
V502	11 - 1			JAN3B24W
V503	11 - 2	5960	108-0238	JAN3B29
V504	11 - 2			JAN3B29
V505	11 - 3	5960	100-7136	JAN4C35
V506	2 - 13	5960	242-6051	JAN2J55
V601	19 - 10	5960	600-5235	JAN5814WA
V602	19 - 5	5960	262-0155	JAN6100
V603	19 - 8	5960	262-0150	JAN6AN5WA
V604	19 - 2	5960	553-6065	JAN5726
V605	19 - 3	5960	237-6917	JAN5725
V606	19 - 10	5960	600-5235	JAN5814WA
V607	19 - 7	5960	518-3091	JAN6005
V701	15 - 9	5960	600-5235	JAN5814WA
V702	15 - 9			JAN5814WA
V703	15 - 9			JAN5814WA
V704	15 - 7	5960	262-0155	JAN6100
V705	15 - 6	5960	237-6917	JAN5725
V706	15 - 6			JAN5725
V707	15 - 5	5960	509-3054	JAN5654
V708	15 - 2	5960	518-3091	JAN6005
V709	15 - 2			JAN6005
V710	15 - 5	5960	509-3054	JAN5654
V712	15 - 5			JAN5654
V714	15 - 4	5960	553-6065	JAN5726
V801	23 - 8	5960	193-5111	JAN5R4WGY
V802	23 - 8			JAN5R4WGY
V803	23 - 11	5960	188-0880	JAN6X4W
V804	23 - 12	5960	166-7648	JAN0B2
V805	23 - 9	5960	166-7674	JAN6AS7G
V901	21 - 6	5960	600-5235	JAN5814WA
V902	21 - 7	5960	193-5136	JAN5687
V903	21 - 6	5960	600-5235	JAN5814WA

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NO. CLASS CODE	STOCK NO. SERIAL OR PART NO.	PART NO.
V904	21 - 9		5960-108-0263	JAN6D4
V905	21 - 6		5960-600-5235	JAN5814WA
V906	21 - 6			JAN5814WA
V907	21 - 4		5960-553-6065	JAN5726
V908	21 - 2		5960-262-0188	JAN5932
V909	21 - 2			JAN5932
V910	21 - 6		5960-600-5235	JAN5814WA
V911	21 - 4		5960-553-6065	JAN5726
V912	21 - 2		5960-262-0188	JAN5932
V913	21 - 2			JAN5932
V1001	17 - 2		5960-284-5842	JAN5751WA
V1002	17 - 3		5960-600-5235	JAN5814WA
V1003	17 - 6		5960-518-3091	6005
V1004	17 - 6			6005
V1005	17 - 2		5960-284-5842	JAN5751WA
V1006	17 - 6		5960-518-3091	6005
V1007	17 - 6			6005
V1201	36 - 2		5960-509-3054	JAN5654
V1202	36 - 4		5960-600-5235	JAN5814WA
V1203	36 - 4			JAN5814WA
V1551	40 - 4		5960-284-5843	JAN5670WA
V1552	40 - 2		5960-262-0150	JAN6AN5WA
XF402	12 - 6			HCM
XF403	12 - 6			HCM
XF801	23 - 3		5920-284-7652	560460
XF802	23 - 3			560460
XI1401	38 - 30			MS25010-5A
XI1402	38 - 30			MS25010-5A
XI1403	38 - 30			MS25010-5A
XI1404	38 - 30			MS25010-5A
XI1405	38 - 30			MS25010-5A
XI1501	39 - 89		6210-295-2627	A5345-328
XI1502	39 - 89			A5345-328
XI1503	39 - 89			A5345-328
XI1504	39 - 89			A5345-328
XK501	11 - 25			49RSS8M300
XT1302	46 - 23		5935-260-0517	TS101P01
XT1303	46 - 23			TS101P01
XV101	8 - 53		5935-232-3758	TS102C01
XV102	8 - 53			TS102C01
XV103	8 - 53			TS102C01
XV151	5 - 37			TS102C01
XV152	5 - 37			TS102C01
XV153	5 - 37			TS102C01
XV154	5 - 37			TS102C01
XV155	5 - 37			TS102C01
XV156	5 - 37			TS102C01
XV157	5 - 37			TS102C01
XV201	7 - 8			53U17952
XV202	7 - 16			53U17952
XV203	7 - 50			53U17952
XV204	7 - 68			53U17952
XV205	7 - 60			53U17952
XV206	7 - 25			53U17952
XV207	7 - 36			53U17952
XV208	7 - 42			53U17952
XV301	9 - 59			TS101C01
XV302	9 - 59			TS101C01
XV303	9 - 60		5935-232-3758	TS102C01
XV304	9 - 60			TS102C01
XV305	9 - 60			TS102C01
XV306	9 - 60			TS102C01
XV307	9 - 60			TS102C01
XV308	9 - 60			TS102C01
XV309	9 - 60			TS102C01
XV310	9 - 60			TS102C01
XV311	9 - 60			TS102C01
XV312	9 - 60			TS102C01
XV313	9 - 61		5935-160-1365	TS103P01
XV501	11 - 13			122-224-200
XV502	11 - 13			122-224-200
XV503	11 - 10			122-224-200
XV504	11 - 10			122-224-200
XV505	11 - 19			122-244-210
XV601	19 - 36		5935-160-1365	TS103P01
XV602	19 - 37		5935-232-3758	TS102C01
XV603	19 - 37			TS102C01
XV604	19 - 37			TS102C01
XV605	19 - 37			TS102C01
XV606	19 - 36		5935-160-1365	TS103P01
XV607	19 - 37		5935-232-3758	TS102C01
XV701	15 - 47		5935-160-1365	TS103P01
XV702	15 - 47			TS103P01
XV703	15 - 47			TS103P01
XV704	15 - 46		5935-232-3758	TS102C01
XV705	15 - 46			TS102C01
XV706	15 - 46			TS102C01
XV707	15 - 46			TS102C01
XV708	15 - 46			TS102C01
XV709	15 - 46			TS102C01
XV710	15 - 46			TS102C01
XV711	15 - 46			TS102C01
XV712	15 - 46			TS102C01
XV713	15 - 46			TS102C01

REFERENCE DESIGNATION	FIG. AND INDEX NO.	STOCK NO. CLASS CODE	STOCK NO. SERIAL OR PART NO.	PART NO.
XV714	15 - 46		5935-232-3758	TS102C01
XV801	23 - 53		5935-260-0517	TS101P01
XV802	23 - 53			TS101P01
XV803	23 - 30		5935-232-3758	TS102C01
XV804	23 - 30			TS102C01
XV805	23 - 53		5935-260-0517	TS101P01
XV901	21 - 41		5935-160-1365	TS103P01
XV902	21 - 41			TS103P01
XV903	21 - 41			TS103P01
XV904	21 - 42		5935-257-6860	TS102P01
XV905	21 - 41		5935-160-1365	TS103P01
XV906	21 - 41			TS103P01
XV907	21 - 42		5935-257-6860	TS102P01
XV908	21 - 43		5935-260-0517	TS101P01
XV909	21 - 43			TS101P01
XV910	21 - 41		5935-160-1365	TS103P01
XV911	21 - 42		5935-257-6860	TS102P01
XV912	21 - 43		5935-260-0517	TS101P01
XV913	21 - 43			TS101P01
XV1001	17 - 23		5935-160-1365	TS103P01
XV1002	17 - 23			TS103P01
XV1003	17 - 24		5935-257-6860	TS102P01
XV1004	17 - 24			TS102P01
XV1005	17 - 23		5935-160-1365	TS103P01
XV1006	17 - 24		5935-257-6860	TS102P01
XV1007	17 - 24			TS102P01
XV1201	36 - 23			TS102P01
XV1202	36 - 24		5935-160-1365	TS103P01
XV1203	36 - 24			TS103P01
XV1503	40 - 58			49RSS8M300
XV1551	40 - 30		5935-160-1365	TS103P01
XV1552	40 - 35		5935-257-6860	TS102P01
Y401	3 - 28		5960-193-5100	JAN1Q22
Z201	6 - 31		5915-503-2073	1003425-1
Z202	6 - 31			1003425-1
Z401	12 - 24			LA156H
Z402	12 - 23		5915-501-3223	LA155D
Z501	11 - 59			17F41
Z502	11 - 6		5915-503-2062	1015586
Z1001	17 - 9		5915-333-8575	1004356
Z1002	17 - 9			1004356
Z1101	18 - 16			15008
Z1102	18 - 15			15009
Z1103	18 - 14			15010
Z1302	28 - 27		5841-028-4111	1015600
Z1303	34 - 11			561080
Z1306	28 - 46		5841-338-1703	1015599
Z1307	35 - 14			LA266A
Z1501	40 - 48			12637A1
Z1502	39 -114			M1139E

SECTION I
INTRODUCTION

1–1. GENERAL.

1–2. The Illustrated Parts Breakdown lists and illustrates all parts and assemblies of Frequency Converter-Tracker, Part No. 58003, Part of AN/APN-105/131, a product of Laboratory For Electronics, Inc., Boston, Mass.

1–3. This manual is intended for use by all maintenance and overhaul personnel for identification, ordering, and stocking of replaceable parts. Due to a great degree of miniaturization found in this equipment, there is little area to mark reference designators for components located on printed circuit boards. This Illustrated Parts Breakdown will serve as the source for locating the reference designations of detail parts of printed circuit assemblies.

1–4. Abbreviations, where applicable, are used throughout this technical order in compliance with Military Standard MIL-STD-12.

1–5. This IPB is divided into the following four sections:

a. Section I — Introduction
b. Section II — Group Assembly Parts List
c. Section III — Numerical Index
d. Section IV — Reference Designation Index

1–6. SECTION I — INTRODUCTION.

1–7. This section includes general information, specific information pertaining to individual sections, directions for use of the manual, manufacturer's federal supply codes and addresses, and source code definitions.

1–8. SECTION II — GROUP ASSEMBLY PARTS LIST.

1–9. This section contains the complete Group Assembly Parts List breakdown separated into figures by main groups and assemblies, and keyed to associated illustrations by figure and index numbers. The relation of each part to its next higher assembly, or main group, is shown either by indention (paragraph 1-11) or by figure cross-reference notes (paragraph 1-12).

1–10. Parts which have lost their identity by being fabricated into permanent assemblies by riveting or welding are not included in this manual. Those parts, such as rivets, pins, sleeving, marker strips, and other miscellaneous items normally carried as standard stock, are also omitted.

1–11. INDENTION. Parts listed in the Group Assembly Parts List are indented to indicate item relationship or next higher assembly (NHA). The nomenclature of each assembly is followed in the list (except for attaching parts) by the nomenclature of its components indented one space to the right. This indention indicates the relationship of the component to the assembly. To determine the next higher assembly of a part or assembly, note the column in which the first word of nomenclature begins. The first item directly above, which appears one column to the left (except for attaching parts), is the next higher assembly.

1–12. FIGURE CROSS-REFERENCE NOTES. The continuity of parts breakdown lists and their relationship to the complete assemblies is maintained by a figure cross-reference note following the nomenclature of the item being referenced, as follows:

a. "NHA figure ", indicates that the item noted may be found in the figure referenced, with its requirements and relationship to its next higher assembly indicated by column indention. (NHA means next higher assembly.)

b. "See figure ", indicates that the complete or continued detailed breakdown for the item noted may be found in the referenced figure.

1–13. ATTACHING PARTS. Screws, nuts, bolts, etc., which serve as attaching parts for frequently removed items are listed immediately following, and with the same indention as the item they attach. They may or may not have an index number assigned. These attaching parts are not always listed in disassembly sequence and are not considered components of the item that they attach. Attaching parts which have been exploded to indicate proper disassembly are always assigned index numbers, and a disassembly sequence is followed. The beginning of a group of attaching parts will always be headed with "(ATTACHING PARTS)", and ended with the following symbol – – – * – – –.

1–14. LABORATORY FOR ELECTRONICS PART NUMBERING SYSTEM. The basic LFE part number consists of either four or five digits followed by a dash number of one to three digits. The following are examples: 8261-131, 38462-28.

1–15. EXPLANATION OF COLUMNS IN SECTION II. The following columns have these data included within the limits of the format:

a. FIGURE and INDEX NUMBER. This column references the part list entry to its location in the illustration.

b. PART NUMBER. Any one of the following may be found entered in this column:

(1) Manufacturer's part number which is related to the five digit code in the description column.

(2) Military part number (AN, JAN, MS, etc.) which will contain a limited description in the description column.

(3) "COML" is used for parts that are procurable through commercial sources.

(4) "NO NUMBER" is used to designate a part procurable only as part of the next higher assembly and which is partially shown because of illustration limitations.

c. DESCRIPTION. This column will contain the nomenclature and a short description of each part listed. The last entry in the description column will be a five digit H4-1 "MFR code". A cross-reference list, code to name, is located in paragraph 1-35. Parts and assemblies manufactured by, or design-controlled by Laboratory For Electronics, Inc., and parts having military identification in the part number column will not list manufacturer's code in the description column. The notation (82598 No. XXXXX-XX) indicates the Laboratory For Electronics H4-1 Mfrs. Code and part number for the item.

d. UNITS PER ASSEMBLY. The following type entry is noted in this column:

(1) The quantity required to make up one higher assembly.

(2) "AR" means "as required" and is used for those items procured in bulk and used as required.

(3) "REF" means "reference" and is used to indicate that the item has been accounted for elsewhere in the group assembly parts list.

e. USABLE ON CODE. Two types of coding are utilized in this column; Application Code, and Usable on Code. The former is used when two or more similar assemblies are combined to form one illustration and listing. Items peculiar to certain assemblies will be assigned a lower case letter that corresponds with that of the higher assemblies. The Usable on Code lists a capital letter that keys the listed item to a particular serial numbered assembly. (Table 1-1). It will not be uncommon to see both codes appearing simultaneously next to a line entry. No entry in the Code column indicates that the item is used in all applications of its higher assembly.

All items bearing the letters AC in the Usable on Code column will be extended to BD, unless the item is followed by a non-indexed entry bearing a code of AD, AE, AF, BC, or BD. In such cases, the item bearing the AC code will be extended to the code letters immediately preceding the code letters used for the non-indexed entry. For example, the non-indexed entry bears a code of BC. Then the entry coded AC will be extended to AF. (Refer to Table 1-1.)

1-16. SECTION III — NUMERICAL INDEX.

1-17. The numerical index provides a complete cross-reference by means of the part number, listed and arranged in alpha-numerical sequence. The order of precedence in beginning the part number arrangement on the extreme left-hand (first) position of the part number is as follows:

Letters "A" through "Z"
Numerals "0" through "9"

1-18. The order of precedence in continuing the alpha-numerical arrangement in the second and succeeding positions of the number from left to right is as follows:

Space (blank column)
Diagonal (slant) /
Point (period) .
Dash (hyphen) -
Letters "A" through "Z"
Numerals "0" through "9"

1-19. Alphabetical "O's" shall be considered as numerical "zeros". Spaces, diagonals, points, and dashes do not appear in the extreme left-hand position of the part number; however, they may be used in the second and succeeding position of the part number and take precedence over letters and numerals as indicated above.

1-20. FEDERAL STOCK NUMBERS. Stock numbers appearing in the Numerical Index (Section III) consist of a class code prefix of four digits followed by a serial number. When a serial number has not been assigned, the class code alone will appear in this column.

1-21. REPAIR KITS. This technical order reflects the listing of repair parts kits. Such listings are intended to provide information concerning replacement parts usable at major overhaul. Certain replacement parts are stocked only in kits. Standard parts and parts having multi-application are stocked in their appropriate classes and may also be stocked in kits. Kit parts should not be ordered from separate stock to make up a kit.

1-22. SOURCE CODES. The following is a list of the main Source Code Categories.

CODE "P"	Parts Under Inventory Stock Control
CODE "M"	Manufacture — Parts Not Procured
CODE "A"	Assemble — Assemble Not Procured
CODE "X"	Parts Considered Impracticable for Manufacture or Procurement.

1-23. SOURCE CODE DEFINITIONS. The definitions of the above listed Source Codes and sub-codes falling within the main categories are as follows:

Code	Definition
"P1"	Requisitioned and installed by any maintenance level. Impractical to manufacture.
"P1D"	Requisitioned and installed at depot level only. Impractical to manufacture.

"PD" Requisitioned and installed at depot level only. Restricted manufacture authorized if not obtainable from supply.

"P2" Insurance type item to be installed at any maintenance level. Structural items with infrequent replacement such as dust covers or cases.

"P2D" Same as P2 but limited to installation at depot level only.

"M" Parts which can be assembled and installed at field maintenance level such as cable assemblies and harnesses.

"M1" Manufactured at depot level only.

"A" Parts capable of being assembled at any level of maintenance.

"A1" Same as "A" but assembled at depot level only.

"X" Parts considered impractical for service manufacture or procurement and for which no usage is anticipated.